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THE
DUBLIN JOURNAL

OF
MEDICAL SCIENCE;

EXHIBITING

COMPREHENSIVE VIEW

OF THE

LATEST DISCOVERIES

IN

MEDICINE, SURGERY, AND THE COLLATERAL
SCIENCES.

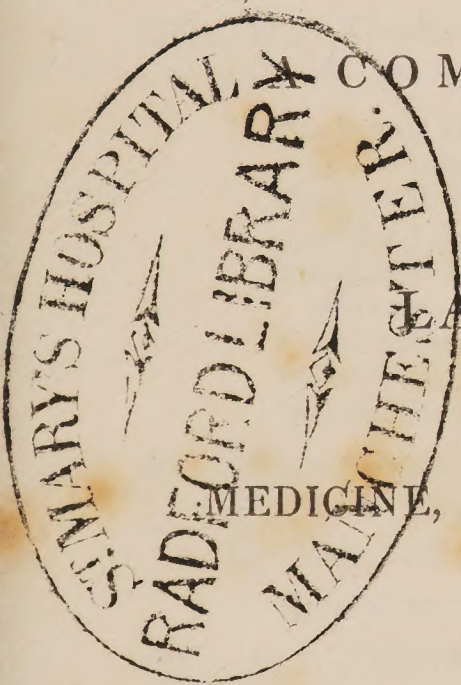
VOL. XX.

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WORKS RECEIVED FOR REVIEW.

1. Lectures on the Theory and Practice of Physic. By William Stokes, M. D. 2nd American Edition, with numerous notes, and twelve additional Lectures by John Bell, M. D., &c. Philadelphia: 1840.
2. Essai D'Hygiene Generale. Par L. C. A. Motard. Tom. II. Paris, 1841.
3. The principal Baths of Germany; considered with Reference to their remedial Efficacy in Chronic Disease. By Edwin Lee, M. R. C. S.
4. The Anatomy of the Arteries of the Human Body, &c. By Richard Quain, Professor in University College, &c.
5. Transactions of the Medical and Physical Society of Bombay. 1840.
6. The Statistics of the Retreat near York: from 1796 to 1840.
7. Pharmaceutical Transactions. By Jacob Bell, Esq. London, 1841.
8. Account of a new Operation for the Cure of Amaurosis, &c. By J. J. Adams, F. L. S.
9. Londres, Ancien et Moderne, &c. Par A. M. Bureau de Rioffrey, M. D.
10. Die Specielle Pathologie und Therapie. Von Dr. Carl Cunstatt. Erlanger, 1841.

Note from Mr. Ferrall.

"Since the paper, which appears in the last Number, was written, I have had the satisfaction to observe, that M. Bonnet, the able Professor at Montpellier, has confirmed my views, by announcing the existence of some portion of the structures which I discovered in April, 1840.

"J. M. F."

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- Principles of General and Comparative Physiology. By WM. B. CARPENTER, M.D. Second Edition 465
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The review of M. Fournet's Work on Auscultation ; translated by Dr. Brady, was received too late for insertion. It will appear in our next Number.

The following Works have been received :

1. Dr. W. F. Montgomery.—Die Lehre von den Zeichen, Erscheinungen, und der Dauer der menschlichen Schwangerschaft so wie von den Phänomenen einer überstundenen Geburt. Uebersetzt von F. J. Schwann. Einleitend bevorwortet von H. J. Kilian, (mit. 1 Illum. und 1 Schwartzen Steintafel.) 8vo., 8 : Bonn, 1839.

An Exposition of the Signs and Symptoms of Pregnancy, &c., by Dr. W. F. Montgomery, translated by F. T. Schwann, with an Introduction, &c., by H. F. Kilian, with one coloured plate, and one lithograph. 8vo. Bonn, 1839.

2. A Manual of General Therapeutics, &c., by D. Spillan, M. D., A. M.

3. Elements of Materia Medica and Pharmacy, by O'Bryan Bellingham, M. D.

4. Observations on Tuberculous Consumption, &c., by J. S. Campbell, M.D.

5. Researches into the Causes, Nature, and Treatment of the more prevalent Diseases of India, &c., by J. Annesley, F. R. S., &c. &c.

6. Die specielle Pathologie und Therapie, von Dr. Cail, Canstatt.

7. New York Quarterly Journal of Medicine and Surgery.

8. The Maryland Medical and Surgical Journal.

9. Pathology founded on the Natural System of Anatomy and Physiology, by Alexander Walker.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Remarks on the Uses of the Globules in Relation to Absorption, Secretion, and Morbid Deposition; but here especially for the Diagnosis of Tubercle of the Lungs or elsewhere.* By THOMAS HODGSON WATTS, M.D.

[Continued from Vol. XIX. p. 401.]

WE now approach the most interesting part of the subject, to wit, the application of our observations on the elementary forms of morbid matters to the diagnosis of tubercle of the lungs. Every contribution to the sum of means for the positive detection of this sad malady, is desirable in the highest degree. If such additional test of the morbid state were a complete proof of the actual existence of the affection, it might be regarded as a lasting triumph of our art. We ought to hail its coming as we would welcome the appearance of a wise, good, and infallible counsellor in a time of need. Besides the proof were simple, and open to the sight of all, without scarce a trace of reasoning, or nice and complex inferences, it would be doubly valuable. Such results the examination of the matters of cough by the

microscope would seem reasonably to promise at one eventful period at least of pulmonary decline.

The sputa of phthisical persons ought, in our opinion, to contain the tubercle separated on the mucous membrane of the air tubes, possibly at every period of the malady. So far, however, as regards the breaking up of grey granulations, of knotted, or of infiltrated tubercle, we conceive it frequently possible, to prove the presence of it in the expectoration, by the elementary forms of the morbid matter. We have already proved the softening of pulmonary tubercle in this way; and we consider this may be done on many occasions from the first of the process of evacuation, until it is completed temporarily or altogether, provided all the matter coughed up be carefully examined.

It is especially, however, at the onset of an ultimate catarrh, in cases of pulmonary decline, that the microscope will probably be found valuable in the positive diagnosis of the malady. While the symptoms simulate an acute bronchitis, whether the signs of auscultation are sure or otherwise, the scrofulous matter is separated, together with that of cough, long before a clear trace of a cavity is discernible by the ear. The diagnosis is founded, at this period, chiefly on the evidence of percussion, and even when most certain, is still merely the rational deduction of a probability. Percussion may often, owing to a variety of causes, disappoint our hopes; and the cavities may be so small in the first days as to offer no extraordinary sounds, much less gurgling or cavernous breath. Considering also how tubercle gains the air tubes, even from minute cavities, as seen in the autopsy, we might *a priori* expect to find it in the matter of cough, before pectoriloquy, and the breath of cavities, and on occasion before gurgling. Our researches have confirmed this suspicion in several instances, and we will adjoin a few cases in explanation.

Consadine, twenty-two years of age, who had been ill of cough for three months, was admitted into the Meath Hospital,

1st June, 1841. According to his statement, he had ever been healthful previous to the time of this attack ; but his testimony was somewhat invalidated by the presence of large nodes on his shins, and a strongly cachectic look.

He was pale, with a swarthy tinge of skin peculiar to many individuals of the lymphatic habit, having light-sandy hair. There was no remarkable emaciation, because of the natural predominance of the cellular covering in him, and the short duration of the malady. His voice was altered, becoming sepulchral after a few days' residence in the ward. He sweated at night, and also most profusely during sleep, even in the day time. His strength was wasting into weakness, the cough had become most troublesome, and the expectoration was almost incredibly copious, amounting to many potsfull of a puriform matter in the twenty-four hours. There was well marked hectic. He did not complain particularly of pain ; but the frequent, and anxious breathing, together with cough, caused him much suffering.

The ear was sensible to some comparative dulness on percussion, particularly at the top of the right half of the chest. Here, in front, there was extensive gurgling ; but this was very general, and scarcely well restricted to points. There was neither cavernous respiration, nor pectoriloquy, although the voice mounted the tube with more readiness than is common to that of healthy lung. A similar series of phenomena were discoverable in the top of the left lung, but much less distinct. Throughout both lungs frequent, constant, and near connected adhesive bubbles, of various sizes, were rattling and crepitating every where, but most remarkable in the upper lobe of the right lung. There was much prostration of strength, and the respirations was quick, short, and imperfect.

There was neither well marked tracheal or bronchial breath, nor bronchophony, so completely were all other phenomena cloaked by the gurgle, bubble, and crepitus of the copious puriform and adhesive secretion from the mucous membrane

of the air tubes. The morbid changes found in both lungs after death must have rendered the auscultatory phenomena somewhat obscure. It is remarkable, that our attention was more especially turned to the right lung, although the left proved to be most implicated. Both lungs were thickly studded with aggregated shot-like granulations of yellow matter, excepting only the bottom lobe of the right one. There were patches of infiltrated tubercle on both sides, and several cavities of the volume of hazel nuts ; but one excavation in the upper lobe of the left lung would have contained a large pigeon's egg, and even more. All these cavities must have resulted from softening of infiltrated tubercle, as they had still the jagged and broken inner surface, for the most part patched with solid tubercle, and where this was chiefly evacuated, a soft, flocculent, velvet tissue, quite moist, was the only lining. The left lung was compressed, solid, and drawn towards the spine, not occupying above a half of the pleural space. It was bathed in a serum somewhat opaque, but scarcely in sufficient quantity to cover it. There were old, long, and tensely stretched adhesions between this retracted lung and the pleura of the ribs. The rest of the pleural space had probably been occupied by gas. The entire right lung adhered close to the walls of the chest, and the bottom lobe was healthy.

From the day after his admission into hospital until his decease, we examined the matter he coughed up each morning by the microscope, and from the first time to the last, we discovered plentiful specimens of pure tubercle. Not only did we find the peculiar globules of the scrofulous matter, but also remnants of the tissue of lung, in the meshes of which tubercle is very generally secreted. The broken parenchyma of the pulmonary organs is, when taken together with tubercle, also a valuable aid in diagnosis. We sometimes find it alone, after the cavities have voided all the morbid product, and at other times forming the framework to a mass of globules, which, from various accidental

circumstances, may not be characteristic enough, except to the well practised eye.

We selected portions of the tubercle from the matter of cough, about the volume of a granule of sago, and having previously washed it in distilled water, we placed it between two plates of glass, together with a drop of liquid ammonia. The glasses being somewhat tightly compressed, in order to break the tubercle into a regular and thin layer, whereby it becomes translucent enough to seem a transparent substance through the microscope, we fixed it in the focus. The appearance of the tubercle in these instances was such as is represented in *Plate 2*. It was wholly composed of the globules, well grown, and devoid entirely of fibres, or any part of the network of pulmonary tissue. The mass of globules presented a yellow or dilute sienna tint of colour, which was reticulated with the grey produced by their dark margins, joining and lapping over one another. Towards the borders the globules are less compact; some of them project, and incline to join in the current, and their individual form, as well as the manner of mutual union, becomes more sensible. It is, however, especially in the stream of fluid, the current of which can be made to flow with variable quickness, that we observe the peculiarities of form and composition most distinctly. They were swimming, of various sizes, either separate or united one to another, forming varieties of composite globules. These are good examples of well developed gum-like globules, mingled among others either broken, or not so fully grown. There are always fewer corpuscles in such a specimen.

Again, other particles of tuberculous matter, taken from the same source, and treated in like manner, presented another series of appearances. Besides the tubercle globules, there were also numerous fibres of the parenchyma of the lung, which are seen depicted in the same *Plate*. These had distinct organic arrangement in every instance; but in some specimens they wore the mark of wise design, and seemed fitted exactly for a

network, to maintain properly the vessels and air tubes. Their proportion to the quantity of the gum-like globules was variable in different samples ; but even here a median or common amount of these two constituents relative to one another, may be established, which is about that we have chosen for our drawing. The less proportion of the pulmonary parenchyma in comparison to the globules, would appear to depend more on the higher degree of development the tubercle has attained, than on accidental circumstances. Still, however, we have very often found fully grown globules, together with a large share of pulmonary tissue. Although, therefore, ripe tubercle globules for the most presuppose more or less dissolution of the texture in which they were formed, yet their attainment of a high degree of development does not account wholly for the absence of fibres in many cases. This may very likely depend sometimes on the primary site of tubercular deposition ; and it is easily credible, that the tubercle globules should be free from those other appearances, when their site has been an air tube. Many of the samples of tubercle in the sputa of Considine, offered to the microscopic view globules in various stages of development ; and the form as well as the colour of them were sometimes considerably modified, both by the prolonged maceration within the cavities in the lung, and by reason of accidental chemical change, or the retrograde process of resolution into more elementary matter. In this place we will omit giving plates of the whole of their appearances, as we intend, on another occasion to give to the Profession all our observations on these bodies in a more exclusive manner, when we communicate a complete history of tubercle in its modifications according to the peculiarities of tissue, and other conditions accidental to it from any sensible source. In this portion, however, the globules were not so ripe as in the example already described ; and they were more closely attached to one another, somewhat less in volume, and tended to separate more in little masses, constituting irregular composite globules. These

floated together with individual ones in the current of fluid as in other instances.

Although there was no more distinct evidence of cavities in this case than gurgling, yet this taken together with the numerous bronchial bubbles, absence of vesicular murmur to a considerable extent, and the irregular sound on percussion, almost removed every difficulty in fixing at once the diagnosis. The whole history and appearance of the case pointed to phthisis; but the rapidity of its progress, and the enormous amount of pus coughed up, gave room to suspect the possibility of common abscess of the lung, or the establishment of extensive supuration in the air tubes after some acute attack. Notwithstanding the real nature of the case could not well have been mistaken by the common means of diagnosis; still the direct and positive proof of softening tubercle, so simple by the aid of microscope, was a considerable point won in the knowledge of the state of the unfortunate man, and also a great comfort and satisfaction to our mind. Tubercle might very well be coughed up under an analogous combination of circumstances, when at the same time the evidence of auscultation is inestimably less decisive.

It is worth remark in this place, that Consadine fell rapidly a victim to the ravage of tubercle; he left life before one-fiftieth part was evacuated from the lungs; and never, on any occasion, during the time he was in hospital, was his sputa free from scrofulous matter. But it is not so in every case which has come before us. It may happen, for instance, that the malady is far advanced and old; and the tubercle being almost altogether or chiefly voided, no more of the gum-like globules are coughed up, or only at intervals. The cavities begin to clothe themselves with new membrane, and the case progresses towards a possible recovery, unless there are actually, or follow afterwards, new crops of tubercle; or else the lung being wasted too much, and the economy being irreparably shaken, neither the disposition

nor yet the ability to rally remains. The victim of tubercle, in some of these instances, seems rather to fall under the long result of imperfect hæmatose, than the direct working of scrofula. The blood is meanly prepared, nutrition is slow, and the poor sufferer emaciates ; although he seems sometimes to gain in fullness of body after the disappearance of the hectic. The plastic process is set up in the sores of the lung, so also the predominance of the fibrine in the circulating fluid, and together with it, a condition of the vitality favourable to phlogosis, and congestions of a permanent nature. There is Scylla—here is Charybdis ; and it must be a favourable air, and every aid, and a good physician, that can bring persons safe through such bewildering dangers.

The case related in the sequel is a good example of the short but temporary absence of tubercle from the matter of cough, in the softening stage of pulmonary scrofula.

John Seery, 34 years of age, ill fourteen months with a cough ; was admitted into Meath Hospital, 22nd June, 1841. His mother died of consumption, and his own child of cough. He has been married but three years ; and excepting two attacks of some venereal discharge from the parts, he was always in the best health up to the date of this illness.

For many years addicted to drink much whiskey, and particularly to Saturday and Sunday debauch, his good health gave way under the frequent dyspepsia of drunkards.

Auscultation in this case furnished every needful information as to the amount of disorganization of the lungs ; and examination of the sputa for tubercle was more a matter of curiosity than otherwise. But we still learn something useful from our observations even here. We see that we cannot establish a negative diagnosis from one or a few examinations of the expectoration by the microscope. Although for a few weeks the poor man coughed up tubercle, yet on one occasion this was not found in the sputa collected for twenty-four hours. It might

happen that on other occasions during a long period of tubercular expectorations, the first observations made upon the sputa of particular individuals might also fail to afford an undoubted specimen of the morbid product, which would, as in this instance, at length be found by farther perseverance. We may establish it then as a rule, that the research of the matter of cough for the tubercle globules, ought to be a daily business in the early stage of phthisis, until the actual softening of the morbid depositions is ascertained. Our pains will be well rewarded, for we will thereby be enabled sometimes to prove positively scrofulous wasting of the lungs in the way of demonstration, at an early period, the fact of whose presence is not always easily settled, even some time after the work of excavation has gone on widely. Again, occasional cases may come before the physician in great practice, in which the view of the expectoration by the microscope would perhaps determine the diagnosis, before so much as a well-founded suspicion of the morbid state might be otherwise excited.

However, it is of less importance in most instances of the latter days of pulmonary decline, to bestow our labour on the indiscriminate inquiry into the appearances of the matters of cough. Not, indeed, that it is of less real value in point of diagnosis, to discover the globules peculiar to tubercle; for there are various combinations of morbid and abnormal conditions, which render sometimes the tell of phthisis obscure unto the end. But, in the common course of things, the signs caught by the ear are quite decisive in establishing the morbid state in advanced consumption of the lungs from scrofula. Thence the ear ought properly to go before the eye in the inquiry into the physical phenomena of phthisis; indeed, the rule should be, to make auscultation the prelude to the microscopic sight, the positive proof of the nature of the disease, when tubercle is expectorated. The ear, and percussion, and the stethoscope are much readier than the more formal investigation of the matter of cough by the microscope; and where auscultation an-

swers the expectations of the physician satisfactorily, it is in most regards lost time, to delay longer in needless inquiry. This holds true in respect to private practice at least, where it is difficult to carry about and right the microscope for a sometimes tedious and somewhat disgusting manipulation for most persons. There are, however, numerous occasions, when this is more simple and ready than auscultation. At times, the tubercle is so plentiful in the matters coughed up, that a few seconds suffice to select it from the mass, and to prove its identity by the microscopic proof. In the wards of an hospital, however, or even in the study at home, the microscope will often be found the most simple and handy means wherewith to ascertain the malady.

Therefore, in advanced tubercle of the lungs, when the aural evidence of cavities is decisive, we may establish two reasons for giving the preference to auscultation over the microscope; to wit, the readiness of the diagnosis by the ordinary means; and, secondly, the inconstancy of the appearance of tubercle in the sputa, and particularly when it has been almost altogether voided from the pulmonary organs. We will subjoin a case in explanation of our view of the question.

Edward Farrell, aged 22; ill of cough for four months, came into the Meath Hospital, 13th June, 1841. His mother died of decline at 34 years, and two of her children in childhood. His father is an old and healthy man, and a sister is living and well.

He was always a most healthful person, never suffering from colds until three years back, when he got syphilis. The primary form was cured in about two months; but twelve months later he became affected with an eruption on his skin, which continued for upwards of a month. From this time he began to lose his colour, and although his health was apparently restored, his friends would ask him why he looked so ill, and changed colour so much.

Four months ago, hoarseness with cough set in, and a month later he began to spit largely, his stomach became disordered,

he grew languid and weary, chilliness followed, and he wasted progressively ; but he never had any pain either in his chest or shoulders.

Since he came into the ward, he has spit little, and, notwithstanding it amounts to about three or four drachms daily, of a puriform matter, yet it seldom contains tubercle. On two occasions we found portions of the texture of the lungs, probably from the surface of an exhausted cavern. But for two mornings we obtained good specimens of tubercle globules, advancing towards resolution, but, again we could detect them no more. We have adjoined a partial view of them in the plate representing their appearances, and particularly that of the composite globules. These ordinarily are of the same colour as the mass where they are found, and in this case they had a light sienna-yellow colour. The globules composing them were more minute than the ripe gum-like ones ; and their form being less uniform and characteristic, we look upon them as tubercle, which has partially undergone solution, or one of its changes in the return to simpler elements.

Having established some principles relating to the comparative use of the ear and the eye in the positive diagnosis of softening tubercle of the lungs in the latter stage of the malady, we will next endeavour to show the value of the microscope in aid of the physician, at a time when the locality and history of the disease are our only guides in determining its kind. There are three periods of pulmonary decline ; when the positive detection of the morbid changes going on in the lung is yet to be desired. These are the periods of the secretion and attachment of the morbid matter, the commencement of its expectoration, and the formation of considerable cavities whence this is emptied forth. The two latter epochs of the series are sometimes discoverable by the aid of the microscope ; and to explain this fact more fully than hereto, we subjoin the following case.

Thomas Bryan, 24 years of age ; ill of cough for three

months ; came into hospital the 7th June, 1841. Born of healthy parents, and of a family no way strumous, he was always in good health up to the month of March last. He took cold and hoarseness then, together with hæmoptoe, which persisted largely for a week. About a month after this attack he came from Limerick to Dublin to be treated by Dr. Stokes, who directed him to be cupped and blistered below the right clavicle. He prescribed besides some cough medicine, and advised him to set off for the country.

Following these counsels for a time, he had no return of the bleeding from the lungs ; but he wasted progressively, Some over-officious friends recommended him to return to the city and enter the Meath Hospital, which he did accordingly.

On the 10th of June, three days after admission, he complained of cough, but was free altogether from pain or ache in either chest or shoulders. He coughed up less than a potful of a frothy, muco-puriform fluid, devoid of a trace of blood. He sweat at nights, and appeared falling into hectic. His pulse beat 80 in the minute, feeble and soft. The head, belly, and urinary system were in perfect order, and the appetite good.

Slight wasting of the chest was remarkable below the key bones of either side. It was otherwise properly formed, and the motion of both sides was equal.

Percussion gave a clear sound on the right side in front, although comparatively less so at the top ; and this difference almost amounted to a degree of dulness behind. The respiration was somewhat feeble, and joined to a slight muco-crepitating rale in the clavicular region, and weak vesicular murmur, with occasional crepitus at the upper part of the back.

There was marked dulness of the left lung, particularly over the upper lobe before and behind. The vesicular murmur was indistinct in this part, and in place we had a firm, dry, crepitus, without bronchial respiration. The lower lobe was natural.

The first examination of the matter coughed up in this case provided us with a sample of tubercle, in which the globules

were but little developed, pale, and devoid of the fibres of pulmonary tissue. There were numerous corpuscles perfectly spheroid, mingled throughout the mass, minute, like those often seen in pus and other morbid products, and appeared to be of accidental origin. Although very similar to many particles of scrofulous matter, obtainable from the lungs after death, which has undergone some casual change, it was not still satisfactory enough to determine our opinion. Perhaps when we acquire a thorough familiarity with all the possible modifications of these interesting bodies, we may in the result find such a specimen sufficiently characteristic for our purpose. On the morrow, however, a second trial furnished us with a large specimen of well grown globules, together with the wrecks of a particle of lung. The fibres presented a remarkable appearance, some of them being perfectly clean as under other circumstances, while another portion of them were still clad with adherent globules. This being one of the characteristic features of the tubercular mass met with, though more seldom, we took pains to make a careful drawing of it, (see the plate), as it might be a stumbling block to a new observer. A little movement of the object glasses upon each other is sometimes sufficient to loosen the gum-like globules, and to expose the fibres simply to view. This singular composition of the globules with the texture where they form, gives additional insight into their habits, and strengthens the opinion of their being probably animal crystallizations. In all other respects this particle of tubercle was essentially the same as in the foregoing instances ; and the variety of arrangement merely depended on casual distribution by uncertain pressure.

The earliest rational diagnosis in the case of Bryan, was pneumonia, suspicious from its site, and the probable precedence of a similar morbid state a considerable time previous in the top of the opposite lung. Auscultation afforded no more certain evidence of phthisis, than the crepitus and dulness proper to phlegmon of the lung, although it bore on it something of a

marked character. It was somewhat dispersed, and conveyed the idea of a tenacious but fine bubble bursting, a little larger than that of pure pneumonia of the same standing. It was a sort of crackling crepitus. The rational diagnosis, although obscure, was, however, strong in the suspicion of the actual malady; and the progress of the local signs was in no degree in harmony with the general symptoms. The dulness and crepitus diminished quickly on the smart application of the antiphlogistic cure to the top of the chest; but neither wholly disappeared. The amount of vital reaction approached nearer to hectic than inflammatory fever, although neither had actually declared themselves. The whole history of the case pointed to ultimate phthisis; and before he quitted hospital, the foretel became most unfavourable, and the diagnosis was established as tubercular pneumonia, waiting for the proof.

It is very probable, that this was an example of those slower forms of pulmonary decline, in which the sufferer falls a victim to successive crops of scrofulous growth. And it is not improbable that the attack some months prior in the top of the right lung was quite alike to the present; and at that epoch, the first harvest of tubercle was reaped. A similar, but second evacuation, now progressing in the left lung, has become complicated with a serious phlegmon; and the malady, up to this period in a manner manageable, must now end in complete softening of infiltrated tubercle, proving fatal. Thus the third attack of tuberculization will, in all likelihood, exhaust his vital energies; and the left lung, though the second for the visitation of scrofula, here, by the casual occurrence of acute disease, will prove the spot on which the deadly shaft is falling, while the primary site of the affection will be found to have suffered comparatively little. If the microscope could have revealed the softening of scattered tubercle in the first instance, as is very possible according to the history of the man, the information would have been most valuable. It ought not indeed to have altered the procedure of cure for the time; for it was wisely

directed to quell the new vital tumults in the part, to relieve the vessels of the top of the right lung from growing congestion, and to conquer any inflammatory phenomena already openly in the field. These precautions probably insured to the poor fellow, at that time, the evacuation of the old deposit of tubercle with the least risk ; and gave him fair opportunity to adopt the needful measures to get rid of the ill habit of body, and to restore his health. This form of the malady, especially in subjects wanting the hereditary bent to it, and also simple, circumscribed tubercular hepatization, seem most favourable to recovery. The former grants time to the physician to work with his remedies, and to the patient for his escape beyond the sphere of evil influences under which the health broke. He may thus avail himself of those grand alteratives of the vital economy, climates, regimen, occupation, and change without limit. The wide world lies before him, gifted with health ; and woe unto them who do not, nor can seek for it with hope and zeal, and warmth. Time, big with opportunity, remains the last truthful protector of the consumptive ; but also this wastes like the open reservoir :

So ist jede schöne Gabe
Flüchtig wie des Blitzes Schein ;
Schnell in ihrem düstern Grabe
Schliesst die nacht sie wieder ein.

Also tubercular hepatization has this good feature, that it is sometimes nicely circumscribed, and not combined with any remarkable amount of scattered and more general deposition. This peculiarity of tubercle of the lungs we have repeatedly observed in children, and particularly during infancy. Although in many of these instances, the little sufferers were eminently tuberculous, yet the complicating local changes were most often seated in the glands of the lymphatics ; a very diffuse site, much less central, and by no means so fatal as the noble organs—the right arm of life. But it is not alone at this early epoch, that infiltrated tubercle is on occasions nicely limited ; we conceive

it to happen so, but less often upwards into old age ; and the following case may serve in some degree to establish the fact.

Pearce Butler, 48 years of age, born in Carlow, Ireland ; has been in London the last seven years ; followed the employment of gentleman's servant. His family were healthful people, and he also for the most part ; his mother died at 90 years.

Formerly he used to live well, and fed on beef, mutton, together with other strong meats, and drank porter, ale, coffee, and the like, to his heart's content. For about ten years, he supposes, he would consume about half a pint of whiskey daily. Latterly, however, he has been constrained by circumstances to live low and feed ill. It is now eight or nine years since he gave over whiskey drinking.

During the last twenty years he has been subject to a winter catarrh, persisting ordinarily about two months ; but the attack was not invariable, and sometimes omitted seasonable returns. He was much wont in former days to have pains in his shoulder blades, which were sometimes very severe when he felt cold. For four or five years of late, he has had gout in his right foot, which came on habitually in March, and lasted till April ; however it has not appeared this year. He has suffered under syphilis several times.

For some years he has endured pain towards the lower margin of the left side of the chest. At times he has had months of relief from it. It was sometimes particularly acute, and less restricted than now. Salivation, blisters, cupping, and the actual cautery were all employed to relieve him ; and the red iron was of great temporary benefit, whereby pain was put aside for a considerable time. Now it is somewhat diffuse, and occupies the space of the palm of a hand, without any physical reason to account for it. It is of such a kind that the poor fellow can give no very intelligible description of it, although he never forgets to complain.

For two months past he has been very short of breath, most so on exertion. Since this time he has coughed a great deal,

and expectorated much. The expectoration consists of a viscid, glairy, mucous fluid, which holds in suspension some little lumps, opaque, and as if purulent. He has had headach for the last week ; that he attributes to the straining cough. His pulses are 84 in the minute, and somewhat soft. He has thirst ; and his tongue is pale, moist, and clean. There is less motion of the left side of the chest than opposite. The response to percussion is comparatively duller on the left side ; and a gurgling and an indistinct sort of pectoriloquism are perceptible in the top of the lung.

We made this examination of the patient on the 1st April, 1836, whilst we resided with the late Dr. Fergus, Professor of Forensic Medicine in King's College, London, in the St. George's Infirmary, Mount-street, Westminster, to which Sir James Clark, Bart., was chief physician. After a long residence and treatment in King's Ward for the shortness of breath and catarrh, by means of light antimonials during the day, and minute doses of Dover's powder at night, he at length died with severe dyspnœa, relieved for a time, but uselessly, by Hoffman's æther and laudanum.

The autopsy was duly made. The length of the body was six feet three inches ; and the skin was clean without eruptions ; but there were marks of cauterization and cupping over the lower part of the chest on the left side.

The head was well formed, and the brain healthful, excepting a degree of softness in a portion of the left lobe of the cerebellum. There was some effusion of serum into the arachnoid cavity, and the arachnoid was somewhat thickened. The pia mater stripped properly from the convolutions.

There was considerable congestion of the inner surface of the large air canals. A few old adhesions held the lungs to each pleura of the ribs on points. The right lung was emphysematous, containing much serosity ; and its air tubes were deep red. The top of the left lung was partly occupied by a large cavity, capable of holding three or four drachms of fluid, surrounded

by a nearly solid strata, with traces of tubercle. The rest of this lobe was emphysematous; there was also emphysema of the lower lobe, together with great congestion and œdema, and a few scattered tubercles. The air tubes held much pus, and were very red within. The root of the bronchus was compressed, and partially constricted by an arterial tumour, where it enters the lung.

The heart was natural in every sense; an ounce and a half of serum was found in the pericardium. There was an aneurism as large as an orange, where the aorta is crossed by the left pulmonary vessels; it contained a fibrinous clot.

The bronchial glands were very large and black. The liver was too large, but otherwise healthy. The spleen was large and soft; the pancreas normal; the kidneys and bladder quite proper.

The mucous membrane of the stomach was found much thickened. There were strictures of the small intestines on two points, but of sufficient calibre to admit the point of the little finger. They seemed to have resulted from loss of substance by ulcer and subsequent cicatrization.

The cavity was emptied; a few specks of yellow granules of tubercle of the same date, and equally advanced, marked the nature of the cavern; and a few scattered, grey granulations in another remote portion of the lung, pointed to a later persistence of the malady, though in a light degree. Dr. Fergus, whom death bore away to a premature tomb, whom we shall ever lament, so lofty a mind, so generous a friend, and so excellent a man;—to his genius and better heart we burn to pay the homage of memory, and to grieve on his untimely loss, wherein our Profession has suffered with ourselves; and science may well weep long for him—a guiding spirit melted from being—as wont the honey bee for scented flowers of summers gone, in whose atmosphere it gathered sweets;—he, indefatigable in the endeavour to apply the deductions of a sound pathology to clinical medicine, looked upon this case as a fine

sample of a number of observations he had made during several years' residence in that admirable institution, in proof of the frequent cure of considerable tuberculization of the lungs. He viewed it as doubly interesting, in relation to a course of the antimonial treatment, to which Butler was submitted for a long time, and which he was inclined to consider as having been of eminent service. We are not disposed to doubt this probability; but we wish to convey the opinion, that more lies in the nature and peculiarities of cases of pulmonary decline admitting of cure, than in the value of a particular routine of practice and lauded remedies. Butler was of a family in no manner a prey to scrofula; and in spite of the ills of venereal debauch, his constitution rallied and overcame, until angina from aneurism hindered him in the duties of office. Until then, almost pampered with the goods and comforts of life, he at length could no longer earn his daily bread; poverty, and want, and distress came upon him, as the storm on the goodly bark. His was shattered in health; and the ill habit presided over the economy, and acute tubercle settled in the lung. The house of charity of a benevolent public received him from the miseries of a cellar in a London lane; comfort again smiled upon him, the aids of medicine were lavishly applied, and new hope took him kindly from despair. Confidence in the wisdom of his physicians grew buoyant, and he rallied for a time, but to fall the victim of an incurable angina.

Whatever may have been the value of the gentle antimonial treatment in this case, we are convinced of its beneficial influence over hectic. We have seen most of the hospitals in the great centres of learning in Europe, but we never saw anywhere hectic so manageable by the physician as in the wards of St. George's, Mount-street. The extreme doses were one-sixteenth of a grain of tartar emetic, with effervescing salines. The assisting remedies were a couple of grains of Dover's powder at bedtime, sometimes joined to a few more of the powder of mercury with chalk, when the alimentary canal was deranged. To keep

the bowels from growing costive, occasional morning doses of a teaspoonful of castor oil were amply sufficient. And to answer particular cases, sulphates of quinine, or iron, or aconitum in minute proportions were had recourse to. Prudent fumigation of the lungs with chlorine was made throughout the disease, when no marked irritability was present. It was a routine practice, founded on keen observation, and guided and modified by an acquired tact. Every new vascular turmoil in the lung was met by immediate leeching ; for, resident in the hospital, we were ready at the call of the patients by night and day. And we have often had reason to admire the relief obtained by small leeching, daily repeated, with a night and morning dose of five grains of hyosciamus and blue pill, in ulceration and pricking pain in the larynx and trachea.

We have thus far sought to show in how much the sight of the tubercle globules, in the matters of cough, is useful to tell positively scrofulous decline of the lungs. But we have as yet only confined our remarks to pointing out the particular epochs of the malady, where the microscope may sometimes be employed with success. We will now direct attention more in particular to consumption in complication with other diseases, and such deviations from the order of health, that sometimes make a certain diagnosis impossible by the ordinary means. If even the proof by the microscope were of less importance to the practical physician, because it does not give us the first intimation of the work of havoc going on in the chest, still it may be invaluable in another sense. Wherever particles of tubercle are plentifully cast forth from the pulmonary organs, it discovers the fact ; and such a test has been hitherto wanting to settle the point at issue in the compositions of maladies, where tubercle of the lungs, even far advanced in softening, is predominant over all. The difficulties of diagnosis, in the instances alluded to, proceed from whatever conditions of the case render the evidence of percussion, and noises of the lungs, obscure or negative.

The physician will often meet with examples of deformity of

the chest during a long career of practice, which ordinarily cause much embarrassment in the determination of his opinion. It is not uncommon for persons so deformed to suffer from habitual cough, and being equally subject to the several other affections of the pectoral cavity, the diagnosis of tubercle is incalculably more difficult. Whether the irregular form is the effect of foregoing disease, not tubercular, or the result of mechanical inconveniences, matters little. Percussion affords no longer satisfactory information ; and softening tubercle may be voided by cough to a considerable amount, before we have any very positive clue to the actual formation of cavities. The history of the case may be obscure ; and the whole of the physical signs discoverable by the ear may not exceed the sum of those indicating purulent catarrh. Since we began our researches into the appearances of the sputa, we have had but one opportunity of putting the value of the microscope to the test under such circumstances. This was in the case of a shoemaker, a man advanced in years, of a healthful family, long subject to cough, and difficult breathing, which had been greatly aggravated for the last few weeks. The entire chest responded too clear on percussion ; it was much flattened, and the whole region of the sternum was depressed back, but particularly below, where was a hollow like a goblet. This had been caused by the pressure of the last from boyhood upwards. He expectorated a thin, puriform matter abundantly. There were mucocrepitating sounds over the whole chest.

The opinion was, for a time, so positive of its being mere puriform bronchitis, that we delayed the examination of the matters of cough until a convenient time, being fully occupied with other cases. The malady made rapid progress however, and the true diagnosis was established. The poor fellow left the wards unexpectedly to die among his friends ; and we only succeeded in obtaining a spoonful of sputa, which both the nurse and he assured us was recently coughed up. Examined by the microscope we found it to be a finely granular fluid, of a

yellow tint, containing numerous microscopic hydatids of the volume of the globules of pus. They were barely yellow, smooth, transparent, and lively in motion for the most part. They were either single and separate, or many huddled together in globular vibrating heaps. They were neither soluble in acetic nor nitric acid, and exactly alike to such as we have obtained occasionally by allowing minute particles of tubercle to grow quite putrid in water. If the testimony of the nurse is faithful to truth, they should be considered as characteristic in such a case of the existence of cavities. The matter they were found in was similar to pus dissolved by the process of putrefaction, which could only happen in a cavern where it might be long detained.

Tubercle following upon old catarrh and emphysema of the lungs, is in no manner uncommon ; and when it is met with, the diagnosis may remain obscure for a considerable time. The over clearness of the chest, on percussion, renders the detection of partial solidification of the lungs extremely doubtful ; and as dilatation of the air cells is often more remarkable in one lung than another, and even in different points of the same, so also the inference derivable from comparative dulness or clearness are in no way certain, and have little practical weight in marking tubercle. The long continuance of the cough here, the distended chest, and the habitual expectoration of plentiful, and even puriform sputa, add to the difficulty. The feebleness of respiration likewise robs the physician of another important comparative sign.

Richard Bonner, 20 years of age, has always had a cough since he can remember ; and during the last eighteen months he has suffered from extreme dyspnoea, so as to walk but few steps without insufferable anxiety of breathing. At the cited period, he had an attack of pleurisy ; and in November a painful abscess formed in his left side, followed by a running which continued some days in large quantity.

There is comparative dulness of the left clavicle ; the spine of the left scapula is dull ; and above the clavicle of this side,

the respiration is somewhat cavernous, but difficult to decide so near the trachea.

The difficulties in this case are the restricted amount of positive auscultatory signs, the habitual character of the cough, the long, severe dyspnœa, and the previous inflammatory attack in the chest. Dr. Stokes, however, rather from large experience in such cases, diagnosticates phthisis, than from positive auscultation.

The result of the first examination of the matters of cough by the microscope was negative ; but two days afterwards we obtained a sight of the tubercle globules.

Fluid in the cavity of the pleura might sometimes happen to make difficulties in ascertaining the actual existence of scrofulous wasting of the lungs. Particularly when combined with purulent catarrh, a certain opinion is not easily established. In those circumstances, the proof by the microscope might come timely enough, on occasion, to satisfy us before auscultation avails our purpose. When of a purulent character also, the hectic could very easily lead to the worst conclusion, of which the event might prove the faultiness. But, again, we should lay little weight on a temporary negative by the microscope, as this will only serve the object of inquiry when softened tubercle is coughed forth, and the lungs may be tuberculized without its giving notice of the fact. But as the evidence of percussion is of much less value in these instances, the earlier positive information at times derivable from the view of tubercle in the sputa, is likely to prove an advantage to the physician.

In regard to solid alteration of the lungs from hepatization, not tubercular, and other causes, and cirrhose, the microscope is not likely to avail much ; it will add only to the negative evidence. This may, however, serve sometimes to complete the complement of probabilities, and make them sufficient to determine an opinion somewhat exact. It is rather in establishing the converse fact of solidification from tubercle, that it may be valuable.

Likewise in the case of carcinoma of the lungs, although we may properly expect both positive and negative information from this source, yet it will be but of little value. In the early stage it may deny that scrofulous matter is coughed up ; and in the later period of softening of the medullary matter, it can but prove the reality. This, however, is so very distinctive in its way, judging from a case of carcinomatous sputa, which came under our observation, that were it always to preserve the like characters, it could never be mistook. The glutinous, yellow, medullary mass, so uniform and thick ; the smell of it like open cancer when not kept clean ; and the cancerous stench of the patient, and particularly of the breath, were striking in the extreme, and remarkable beyond a doubt. It is, however, the negative evidence of the microscope in respect to carcinoma, when it tells positively scrofulous softening of the lung, that we should anticipate, will sometimes be valuable in determining our opinion. One instance of this kind we have met with ; although the amount of uncertainty was barely sufficient to raise the question of carcinoma. The period of life of the man, being far advanced in years, the rapidity of much solid alteration in one lung, and the previous sound constitution, the absence of a sure sign of cavity, and of respiration also to an uncommon extent in the part, all these reasons, and default of hectic, created a momentary suspicion, which before many days elapsed was relieved by the formation of cavities. However the first proof of the sputa by the microscope was decisive of tubercle.

Having reviewed rapidly the several cases in which the microscope promises new light to the physician in the positive tell of pulmonary decline, we will take leave of this part of our subject, in making one suggestion to the surgeon. It happened in the course of these inquiries, that we examined the matter coming from a tumour in the axilla, which afforded us several times good specimens of softening tubercle ; for which we are indebted to our friend Dr. Innes, of the 84th Regiment. This was a cluster of enlarged glands, as large as a turkey's egg, which

had grown rapidly from the pressure of the belt of a knapsack on the cicatrix of a scrofulous abscess. The sufferer, a common soldier, had previously had syphilis, thereby he fell into ill health, and the scrofula succeeded. There was some very remote possibility that a more malignant quality of disease had supervened ; but it was not so in reality. The new test here only proved the most probable opinion of the case correct. There might, however, occur cases in which the nature of a tumour is doubtful ; and since Müller has traced the appearances of all the varieties of carcinoma, and malignant growths so completely, the microscope may perhaps prove of value to settle such a difficulty.

Whatever real use the future, and further observations may award to the microscope in the diagnosis of scrofulous disease, we are satisfied with the broad results of our endeavours to make it available to a practical aim. The having unravelled the elementary forms of tubercle, the modes and ultimate sites of its formation, and its relations to complicating morbid states, establish this branch of pathology on the soundest basis.

Tubercle has previously been observed in the large veins, and in the minute venous ramifications, by several distinguished pathologists, and particularly by our friend Dr. Carswell. This great master in human pathology was led to argue on this ground, that it usurped, as the first site of its formal existence, the circulating fluid. The whole medical mind of that epoch was ready, with few exceptions, to accept this opinion, which the detection in the blood of urea, bile and other organic compositions proper to the physiological state, seemed to render probable. But the analogy between the normal secretions of health, and those of disease, is not complete ; and the inference thus derived exceeds the bounds of a severe conclusion, estimated according to the present state of knowledge. May be, the time may come, when this opinion shall be established as a reality ; but we doubt its being so most firmly. It is never found in the blood in the most aggravated cachexia, before the local deposition of it in the organic textures. It was never detected

in after-death coagula, previous to its softening in some locality of the body. When seen otherwise in the vessel, it was always in the character of a plug; and important local changes of a similar nature were found likewise in the immediate neighbourhood. This is the amount of information communicated on this interesting subject; and whilst we object to so ingenious an opinion, we will add to rather than detract from the force of the arguments in favour of it. Not only, therefore, do we allow the full value of the few observations made concerning tubercle in veins, but our own researches tend to bear them out completely, and to bring fresh evidence of the fact of vascular tubercle. The examination by the microscope of this morbid matter, on occasion, shows something analogous to gum-like globules in seeming vessels, as well in their finer distribution hidden to the naked eye, as also in the ultimate loops of apparent capillaries. This appearance, however, is not invariable, and seems more especially attached to an advanced epoch of the malady in one set of cases; and we consider it possible to point out the proper relation of it to the act of tubercular secretion.

During the period of simple secretion, as in the case of tuberculization by the grey granulation, the vessels are not choked with the globules of tubercle, so long as the grey bodies remain a thick plastic fluid, approaching ever so near, or even actually within the limits of solid matter. The spleen of scrofulous infants offers them most conveniently to the observer; and even at this stage, the vessels surrounding these granular depositions bear the marks of that share they take in the morbid work. They lie imbedded in a network of minutest blood-vessels, deeply injected, but the blood is still readily soluble and removable by washing. If they are allowed to rest some time in distilled water, they blanch quite white, and the vascular tissue grows velvety and flocculent, like the outer membrane of the animal ovum on a larger scale. This aspect probably results from the empty web of vessels hanging in shreds, in a framework much more resistant than the neighbouring tissue of healthy spleen.

Here we have, thus far, punctiform tuberculization, only along with congestion on a minute point, additional adhesiveness of tissue, and the secretion of a sort of plastic fluid, not admitting of organization into fibres, but in place being a true embryo of tubercle globules.

But it would not appear to be altogether so at a later epoch, when the granulations shall have blanched or become yellow matter. Especially when the latter has commenced the work of softening, we have frequently seen appearances resembling branches of minute vessels and loops of capillaries, as if gorged and distended with tubercle globules, which could never have circulated as such. They always seemed firmly attached within them, proportionably more indeed than coagulum of blood in inflamed veins of considerable calibre. They appear too large for ready circulation, nor are they sufficiently elastic, possessing much rather the resistance of solid particles, than the limitless pliancy of the blood-globule. The entire of those apparent vessels and capillary loops partake of the character of stiffness, and look more brittle than mere membranes. Upon the whole, however, they preserve still a considerable amount of elasticity, and, if really tubercle, it is then, perhaps, the very best injection of the capillary in red-blooded animals, and interesting alike to the cultivators of anatomy, physiology, and pathology.

Since it is so clear that tubercle could not have circulated with the blood, as it is when seen in this stage, it becomes a question, did it ever mingle in form with it? This embraces the inquiry into the mode of formation of tubercle within the vessel, as well as the act of tuberculization in general, and deserves much care to explain it fully. There are but two modes, according to which tubercle can be supposed to occupy the entire calibre of the capillaries, and continuous vessels. Thus were the act of tuberculization to continue long after much of the plastic embryo had been deposited outwardly, and has even accepted the solid form, and undergone the globular change, the tuberculizing state persisting as during the period of secre-

tion, but unable to pass more of the morbid matter through the walls of the capillaries, might gather, remain, and assume also the form of globules, being favoured by the mechanical condition of the parts. This appears to us as sometimes the fact, provided that such actual obstruction obtains, as to hinder circulation in the capillaries sufficiently, to deliver the blood wholly to the accumulative affinities of tubercle, without forcing it into the general vascular current. Thus far tuberculization is a simple process, and the ordinary forces of secretion are alone interested in the morbid work, both within the vessels and outwardly. But we do not conceive it so in other cases.

The second mode of tuberculization in the capillary loops, and their continuous vessels, is probably much more rapid. The first step would here seem to be coagulation of the blood, and consequent arrest of its movement onwards. Thenceforth the change into tubercle may go on. The capillary coagula owe their origin ordinarily to the permanent congestion of phlegmon. The blood in the capillaries of the inflamed part, we are told by Glüge, stagnates, leaving the circulation to be carried on through anastomosing loops of larger calibre. The blood globules unite in bodies of several together, forming aggregated globules, which plug and even distend the vessel to the utmost. If suppuration sets in, these compound globules pass into the form of that of pus. So also it would seem to be somewhat analogous in acute tubercle. The blood globules having combined with one another in various proportions, their movement stopped, and the suppurating process failing to set in, that of tuberculization changes them accordingly. Tubercle apparently bears somewhat of that relation to its particular cachexia, which pus and lymph do to the state of ordinary health.

The metamorphosis into pus is much more complete and remarkable than into tubercle, and most likely requires a warmer vital alteration of the part, reacting often with shivering and rigors on the general economy, and not seldom with smart fever. There is a thorough alteration of the coagulated blood in this

case. The compacted globules assume the form of sacculæ with a rough surface, as if spotted with most minute points of more solid matter, and they contain fluid. The fibrine, instead of taking on the aspect of fibres, becomes slightly adhesive fluid, finely granular. Such is pus; and the saccular form is rendered doubly distinct by the addition of an alkaline solution. This, in dissolving them, removes the granular points on the surface; the saccula becomes relaxed, grows transparent, swells considerably, bursts, and disappears; a granular slime alone remaining. It is also not improbable that the creative force of pus, alike to that of tubercle, comes into play in two ways; either directly in acting on coagulated blood globules, both in and external to the vessel, or on its elements in embryo, secreted on membranes from the blood of the capillaries. The former procedure ought to be the more violent; and the life of the part suffers so much, that the capillaries and the whole texture interested, submit equally to the solution and new composition of the vital affinities of the suppurative process. It is very likely, also, that to some such cause we may justly refer in part the violence of abscess over mere purulent evacuation.

There is a striking distinction between the trifling disturbance of the economy sometimes attendant on plentiful, but diffuse secretion of pus on the surface of membranes and even of noble viscera, and the turmoil of whitlow and suppuration in tissue. Purulent catarrh of the lungs seems needless to name, so familiar to every one; but we have often had reason to admire the tranquil separation of pus into the belly in puerperal disease. So long as inflammation persists simply, or with sero-fibrinous exudation, we may remark frequently considerable suffering. When, however, the suppurative act sets in, pain is not seldom no longer responded to, and a delusive alleviation of some prominent symptoms seems to keep pace with the secretion of pus. It is not, again, until the purulent fluid within the belly becomes sour, that new disorder adjoins, and the poor creature grows breathless and cold, and dies with a pulseless

arm and failing heart, as if poison were imbibing. However, neither the peculiarities of site, nor any distinction we could make between suppuration in tissue, and purulent secretion, account wholly for the various phenomena of the formation of pus. The labour of abscess may even be just as kindly on occasion as at other times severe ; but this only adds fresh importance to our position of a difference between the degree of vital turmoil in the two conditions alluded to ; for it proves besides, that there are also special changes of the vitality proper to individual as also to particular sets of cases.

But the change of coagula into tubercle is by no means so remarkable, nor is this metamorphosis by far equally remote. The derangement of the general functions of life is much more tranquil, and only equals at the utmost, if even always so, the disturbance of purulent secretion from the mucus surfaces, much less the disorder of abscess in noble parts. Acute tubercle of the lungs itself is most often marked almost solely by an acceleration of the pulse, otherwise unaccountable, and it may be also by some amount of fever. It is, however, more especially at the epoch of softening that hectic reigns ; when suppuration also adds to the vital turmoil.

The change in the external appearances of the agglomerated blood globules of phlegmon and coagula in their conversion to tubercle, is probably trifling comparatively to pus. The compacted globules, we conceive, instead of undergoing the alteration into an orbicular membrane, as in the purulent formation, would seem gradually to unite more intimately, and by some integral arrangement of vital chemistry, to crystallize into the somewhat globular and gum-like bodies of tubercle. It is also, in all likelihood, to this circumstance that we ought, in part, to attribute the irregular forms and volume of the tubercle globules, inasmuch as they may preserve all the irregularities of the agglomerations of the coagula of phlegmon. We should not, however, lose sight of the many other good reasons for such variety of conformation, and particularly of the influence of tis-

sue, long compaction together, and the admixture with secreted tubercle.

The chemical change, however, from the compacted globules of the coagulum to those of tubercle, is most evident. The globules in the latter are not, as those of the blood, immediately soluble in distilled water, liquid ammonia, and nitric acid. They are, however, quickly acted upon by acetic acid; losing their colour, they seem but scarce visible shadows in the stream, and are progressively dissolved. By the timely addition of a little ammonia, however, the remaining portion of them may be restored to view in their pristine aspect. We conceive the change of these coagula into tubercle ought to be very gradual; and, though oftentimes slow, it may yet proceed with more marked readiness, when the tuberculizing state is of unusual energy. Also it is probable, that the chemical reaction of the compacted globules of the blood thus, in their progress towards tubercle, becomes modified in gradual proportion. We consider this opinion important enough to draw attention; for if it could be established by careful observation, we may rightly hope to be able one day to foresee the work of tuberculization going on in one set of cases, which would be information tenfold more valuable than the knowledge of the fact of softening. The following case will explain our meaning:

Daniel Brien, 24 years of age, unmarried, and of a healthy family, not subject to disease of the lungs, came into Meath Hospital 25th of June, 1841. He never was ill previously, excepting once some years ago having had syphilis. Fifteen weeks before, he got wet at work, and fell ill of looseness and pain of the belly. He was admitted into an hospital for these ailments, and eleven days afterwards, taking cold from the draft of a window, left open near his bed, he was seized with pain in his right side, coughing, and white expectoration, which soon became yellow, and amounted to three potsfull of puriform matter during twenty-four hours. He was bled seven times for this attack,

and was discharged after an interval of a month, although some pain and considerable expectoration still remained.

Now, even, he complains of debility, cough, and pain over a hand's breadth of the lower part of the chest, on drawing a deep inspiration. The whole of the left side responds fitly on percussion, and the lung offers pure vesicular murmur throughout, devoid of abnormal sounds. The front of the right half of the chest, from above to a couple of bells below the nipple, is clear also, and the respiration is vesicular. Below, however, it is dull, and the murmur scarcely audible. The upper scapular region is almost normal; but below the shoulder blade and the lower part of the space between it and the spine are somewhat dull, and this dulness is gradually more decided towards the bottom of the chest. The respiratory murmur is quite distinct above the spine of the shoulder blade, but sometimes accompanied with slight mucous rale. Below, however, where the dulness is, it is proportionately weaker, and accompanied by muco-purulent crepitus, in particular on coughing.

The expectoration amounted to a potful and a half in the day of a puriform matter, during the first week of his admission; but by well directed treatment, it has diminished to within two ounces of a similar quality of pus. The night sweats have been checked, the pain alleviated, and a troublesome diarrhoea stopped. The man is more cheerful, acquires something in strength, and there is much reason to hope for an ultimate recovery, from the sad effects of a pleuro-pneumonia so long neglected.

From the date of his admission to the 16th July, we examined the matter he coughed up carefully, and tested anything suspicious by the microscope. We never found a trace of softened tubercle during this time. It consisted of pus globules, together with an unusual proportion of granular sort of fibrinous matter. Some pieces more consistent and white

than the rest, and varying from the size of a pin's head, to that of a small pea, appeared a uniform, finely granular, moist mass, having a slightly yellowed tint, and devoid of globules.

On one occasion, however, July 6th, we found a new appearance, which was a more solid yellow matter, and very like old softened tubercle in its broad features. It lay in separate portions in the same lump of matter coughed up, and resembled fragments of a yellow wafer, somewhat moist, strewed therein. Viewed by the microscope, it was composed of globules considerably like those of soft, yellow, infiltrated tubercle of the lungs, only they were, perhaps, too soft and separate, and uniform, and scarcely compacted enough; besides there was no trace of pulmonary tissue nor capillaries. They were not quite so soluble as the blood globules in distilled water, and in ammonia, but resisted these tests in no measure equal to tubercle. They were again resolvable into separate yellow particles, which once had been blood globules, but were altered enough, to make it impossible to distinguish them, without some rational aid. They were clearly by origin the compacted globules of coagula in phlegmon, and it becomes an interesting query, were they undergoing the change into tubercle? The wafer-like aspect shows, that they had adhered by coagulation on the surface of some considerable air tube. Their having assumed this arrangement, seems more than attributable to mere mechanical causes. Their not having in preference gone over into pus, although coming from organs, secreting pus so plentifully, is also remarkable. The slight modification of their chemical re-action is likewise with the above, a reason for suspicion. Besides the part of this yellow matter, which had formerly been the fibrine of the coagulum, was not organized into fibres, nor yet into the granular slime of pus. It lay in mass, and had put on the appearance of yellow bodies, alike to pigmy potato oats in form, and coloured as pale amber. We have also seen this appearance in the puriform expectoration of confirmed tubercle of the lungs, but we are not able to indicate any

exact relation between them. Besides the other remarkable matters in the expectoration in this case, as often happens, there were also many points of blood to be seen almost daily, but particularly during the early part of his residence in the wards. Some of them were blanched quite white, and only recognizable by the microscope, whilst others were as red as if newly escaped from the vessels.

Tuberculization of the lung, together with flow of blood, is most common. It would be well if its exact relationship to the formation of tubercle could be rightly ascertained. We might hope therefrom to obtain some useful hints as to the leading principles in the cure. The mere knowledge of the pathological fact of bleeding being so often a messenger of phthisis, is more valuable in regard to diagnosis than treatment. This is not the sort of pathology which can bring the physician all the profits he so justly awaits from the study of disease. We should seek to ascertain every peculiarity of the broad features of the malady, and determine thereby the strict bearings of them upon one another. Such an inquiry into the loss of blood from the lungs, in brooding tubercle, has a particular interest.

We have already seen, that an overfulness of blood is common to the vessels in the neighbourhood of secreted tubercle. Also, in the acute form of this malady, there is all the richness in blood of a part under phlegmon. Thence arises the question, is hæmoptoe, in effect, a signal or a serious complication of the morbid state? The former is certainly the fact, and we are of opinion the latter may happen under a series of conditions.

The flow of vital fluid appears as somewhat equal to an effort to relieve the lungs from their pending danger; but we do not approve of allowing to that able physician, Nature, the purposed institution of particular remedies for casual disease. It is likely the hæmoptoe is only an accidental but usual part of the disorder, or of the vital phenomena in tuberculization. The equilibrium of the vitality is disturbed; there is already a

bent to punctiform congestions, and plethora and various functional derangement are common to the lungs in such cases. It is not improbable that the large escape of blood, therefore, may often prove serviceable in warding off minute permanent congestion of a plastic and phlegmonous character. And when the hæmoptoe is frequent or large, it is, may be, more a measure of the intensity of the malady, than an essential requisite of tuberculization.

We ought, however, by no means to look upon it as desirable, even were it proved of transitory utility to the locality. Although, perhaps, extensive bleeding congestion of the lungs is essentially less dangerous in the tuberculizing state, than those other forms of it which are limited, but permanent, yet every extraordinary accumulation of blood in the pulmonary organs, is much to be feared during the predominance of the tubercular habit. Recollecting its being commonly the signal of more rapid and active tuberculization, we ought not to trust to this effort of the unaided vitality for the relief of pressing danger, but we should second, and if possible anticipate it. It is not too much to hope, that in quelling it we aim at the same time a resisting blow at the more insidious and persistent disease. If even the simpler remedies of the one are comparatively only modifiers of the punctiform expression of the tuberculizing state, their careful adoption does not hinder us in the employment of the whole routine of practice applicable for tubercle. Again, the hæmorrhagic fulness of the vessels of the lungs is doubly dangerous in its aptitude to combine the slower attachment of tubercle, with accidental phlegmon; and it is in this way, may be, a convenient preparation for acute and infiltrated tubercle. Viewed in this light there are good pathological grounds in favour of the treatment of the olden Percy, founded solely on clinical experience in his day.

Again, it is questionable, if the retention of exuded blood in the air tubes, may not also favour somewhat directly the process of tuberculization. If coagula fixed in the air tubes

admit of change into tubercle, this would be evident at once ; but we possess no authority sufficient to establish such a point. If also the secretion of tubercle by the mucous membrane be admitted, we might then allow it to be a mechanical promoter of the morbid work. Notwithstanding, however, the general facility of voiding by cough, the blood escaped into the lungs, still these suppositions are far from being outrages to common sense.

There are distinctly two modes of bleeding from the lungs in the progress of tubercle ; but the flux from open vessels by the process of ulceration and softening, is foreign to our inquiry. It is the escape of blood from the mucous surface of congested lung during the attachment of tubercle we are discussing. Of this kind of bleeding there are two sorts, one copious, and the second punctiform. The latter is very general, more so perhaps than has been believed ; and we observe it not seldom when even the blood is blanched, and not to be distinguished by the naked eye, and resembles a whiter pus. Whatever may be its relation to punctiform tuberculization, must remain for time to reveal ; but it becomes doubly interesting by this relationship, and would seem to indicate a more serious change in the textures whence it comes, than is accounted for by mere catarrhal alteration of secretion. Sometimes it seems mingled in a little matter of expectoration otherwise different from the mass. Whatever changes these points of blood are subject to in the air tubes, besides the loss of redness, remains to be explained ; but we see no decided reason, wherefore they may not undergo, according to circumstances, all the transitions it suffers within the living textures elsewhere, when once it becomes permanently lodged in the lungs.

Tuberculization by catarrh is the most common of the several means of attaching the disease in the lungs. It is in general the prelude of the more active forms, to wit, congestive bleedings and phlegmon, when they do occur ; but it is sufficient alone to inundate these organs with the tuberculous matter,

and frequently accomplishes the whole work of destruction, almost devoid either of those complications. The mere phenomena of pure catarrh are indeed wholly distinct from tubercle ; but the pathological state of the lungs in this affection, is one step within the boundary of those morbid conditions they present in tuberculization. Thus far certainly it becomes an all important disorder of the health, even in its most trifling form.

Slow catarrh and morning cough are frequent forerunners of the deposition of tubercle. It is true, that they may persist almost for a lifetime without so direful a complication ; but, in persons of the tuberculous habit, they should be regarded as ominous. We are disposed to accept the opinion, that the form of the tubercular deposit in these cases is probably the grey granulation, perhaps exclusively. Here the act of tuberculization is, possibly, a bare procedure of secretion into the tissue of the lobule and air cells, and from air tubes. In this point of view it would be interesting to ascertain all the analogies of the pearly sputa, to the plastic fluid of the grey granulation. Although this would be a slow way of inundating the lungs with tubercle, it does not hinder the possible occurrence of more acute attacks ; on the contrary, it would sometimes seem to give a greater disposition thereto.

Acute catarrh is so ordinary a disease, and its relations to tuberculization of the lungs so well known, as to make it seem superfluous to mention it again. But an opinion has been sent abroad, that it may become an agent against consumption. The comparative infrequency of decline of the lungs from scrofula in some cold northern climates, where catarrhs are more than usually common, has led some to conclude, that the copious secretion from the mucous membrane here carries off the tubercle like a ley. But this is too mechanical a view of the matter ; and accounts in no manner for the avoidance of the morbid deposition so general in the intimate texture of these organs. It has been forgotten, whilst arguing thus, that the people are distinct races of men, having different social habits,

and subject to varieties of clime and country. The authorities that tell us of the want of tubercle of the lungs in Iceland, and the frequency of colds, for example also speak as positively of the default of syphilis in equal proportion, and many other peculiarities of disease, and also of the invigorating influence of its region. Even allowing that individuals, late the victims of lingering colds, sometimes recover their health perfectly after a smart attack of acute catarrh, are we to conclude therefrom, that this was the bare instrument of their recovery? It should also be taken into account, that a grave application of the means of cure is then made to overcome an affection which might otherwise have been too readily tampered with. At all events, in our country, where the hereditary bent to tubercle is so great, where the social condition of the people assists to originate the disposition to it, and where an inconstant climate and the workshop favour its localization in the lungs, acute catarrh is a most serious malady. Perhaps next to hæmoptoe, it is the most ordinary means of hastening the more tranquil process of tuberculization. Like, as in those congestive bleedings, the morbid state of the lungs in acute catarrh is also a far step on the path to tuberculization, and when the ill habit reigns, sad indeed is the result.

Purulent catarrh, whether it be the sequel of a recent acute attack of the same form of disease, or the follower upon inflammation of the substance of a part of the lungs, is a common complication of the tuberculizing process. However, in as far as the mere suppuration is regarded, it might perhaps be allowed to be of favourable omen. An extensive suppuration of pus is, of course, comparatively of little consequence abstractedly considered; but, again, it is no complete protection against the independent act of tuberculization. If we could command a well concocted pus, on every hand the result would be desirable; but the physician is not omnipotent over disease, and partial congestions of another kind, as well as bleeding and phlegmon, can equally occur to complicate it mournfully. There

are few things more common than to meet with points of blood mingled in the puriform mass coughed up, discoverable alike by the microscope and naked eye; and these sometimes appear far from undergoing purulent change. Considering the pathological condition of the lungs in purulent catarrh, however desirable a safeguard, in general, the suppurative change may be, as perhaps also the flux of blood on other occasions, still we must regret the need impelling thereto. However fortunate supuration may be in the lungs, in comparison to a permanent accumulation of blood, and supervening tubercle, the morbid state originating it, is equally favourable to the latter dreadful malady. When the tubercular cachexia overrules, the lungs, even in puriform cough, are in a state of pathological preparation, suited better for the attachment of the scrofulous product there, than when not previously engaged in the turmoil of disease.

This localization of tubercle on particular points, independent of more general secretion of catarrhal matters, whether pearly, slimy, or puriform, is an interesting feature of the malady. It seems often to preserve a similar character in its combination with the plastic process in tissues, and particularly on serous membranes. Poured forth equally with the plastic fluid, the organizable portion of lymph undergoes the change into cellular texture and fibres; it is gathered and arranged by its formative force, and the tubercle is separated apart, and by its collecting so distinctly on points, shows that over and above the respective arrangements of tissue and kind, perhaps also the punctiform source of its secretion. This particular character of tuberculization would appear more striking were it singular; but when we look back upon the general expression of cachectic disorders on a locality, we become familiar with the fact. So it is in skin affections, in the phlegmons of ill habit, the attachment of pus on points in puerperal fever, in purulent absorptions generally, and those punctiform hepatizations of secondary gangrene in the lungs.

However, purulent catarrh is most often the companion of

the expulsive effort of tubercle, whereby the morbid matter attached in the lungs long before, is expelled from its site. The tubercle globules having run through their career, the morbid matter softens and tends to dissolution, and suppuration often aids its escape from the part. It is this combination of morbid actions that seems more especially favourable to hectic. Once having gained the open air the pulpy mass is coughed forth ; and at this period it is, that we are sometimes able to discover the tubercle in the sputa.

The procedure we adopt is this ; we take the whole of the matter coughed up by the patient each morning, having previously charged him not to spit into the vessel before washing his mouth well, after eating or drinking. This precaution saves a great deal of trouble, inasmuch as it excludes all foreign materials which might deceive the naked eye. We search through all the sputa minutely, by portions poured on a clean platter, and every particle resembling in any way softened and separated tubercle, as seen in cavities of the lung, we put carefully aside. After washing them in distilled water, we test them next with the microscope and liquid ammonia, as previously mentioned ; and, if doubt remains, also by acetic acid. There are many matters, both foreign and accidental to the expectoration, which might cause a good deal of difficulty ; and, therefore, in a succeeding part of our paper we purpose to give a full history of the appearances of the sputa.

The needful condition for the tell of scrofulous wasting of the lungs by the microscope, is the presence of little particles of tubercle in the matters of cough ; for the general mingling of it in a fluid state with pus and slime renders it, perhaps, almost impossible of recognition with any certainty. This requires that broken portions of the morbid product escape from the cavity without solution ; but the complete reduction to a fluid mass is so frequent, that we foresee the probable inconstancy of the proof. If, however, our further experience shall not prove it as valuable a means of diagnosis, as we

hope, at this period of our inquiries, we comfort ourselves with the conviction, that all further refinements in this department of our art are suited most particularly, and in general, but to particular and otherwise obscure cases.

We will make one other remark in conclusion, on the frequent paleness in the colour of the skin in the ill habit of tubercle, generally preceding the local attachment of the malady. This is quite distinct from the alteration of look from confinement in the nursery of the sick; and though it mostly keeps pace with the growing cachexia, and a falling off in the ordinary energies of the victims, their ailments may never have been as yet sufficient to awake them to the danger they are in. It is allied to a default in the quantity of blood globules in the circulating fluid, which Andral ascertained in his interesting inquiries into its changes in disease. It is perhaps impossible ever to ascertain the sources of this peculiar step preparatory to tuberculization in so many cases. But we think it is justifiable to draw before our mind, as being worthy of remark, a shadow of likeness between what goes on in regard to the blood in the site of tuberculization as a part, and the disproportion of globules in the circulation as a whole. And we may ask ourselves here, is not a similar power of altered vitality diffused throughout the frame, the active agent of this paleness, which being centered in a part, and aided by busy complicating disease, is sufficient to solve the blood and change it into tubercle? If we could but establish this analogy on a good foundation, we would have, in this disorder of sanguification, a nicer notion of the tubercular cachexia. This is not without interest, so important is a sound pathology in its relationship with therapeutics. The features proper to the local disease here are probably related to the more general malady, and the bond is, perhaps, mutual. Again, the unequal success of the martial preparations in the green sickness and in tubercular cachexia is marked, although experience has proved them valuable in both. The muriate of iron has long been vaunted, and not without justice, in engorgement of the

glands of the lymphatics in the predisposition to scrofula. But we draw within the pale of speculation, where we ought not to venture except in conjunction with nicely detailed facts from careful observation.

We made the preceding observations in the Meath Hospital, where every facility was kindly offered to us in our pursuits by Doctor Stokes and by Doctor Graves, to whom we are indebted for the liberty of publishing the cases we have detailed.

EXPLANATION OF PLATE II.

a. The fibres alluded to generally in the several cases.

b. Those of them with adherent globules, spoken of in the case of Bryan.

c. Refers to the composite globules mentioned in the case of Farrell.

The groundwork of the plate represents the general appearances of tubercle, taken from the matters of cough.

(*To be continued.*)

ART. II.—*Treatise on Congenital Club-foot.* By Dr. JULES GUERIN, Directeur de l'Institute Orthopédique de la Muette, Paris.*

[Translated from the French by S. LENOX L. BIGGER, M.B., T.C.D., L.R.C.S.I., Surgeon to the Adelaide Hospital.]

THE last discussion at the Académie has proved that scientific men are not yet satisfied with respect to the etiology of conge-

* At the *concours* for the great surgical prize in the Académie des Sciences, the following report was made on this paper :—" M. J. Guérin a encore établi l'existence d'un ordre nouveau de pieds-bots congénéteaux produits par la retraction musculaire convulsive pendant la vie fœtale. Cet ordre de causes dont l'origine sera démontrée plus bas, offre des caractères qui ne permettent pas de les confondre avec les causes qui produisent d'autres espèces des pieds-bots congénitaux."

nital club-foot. All the doctrines proposed from the days of Hippocrates to our own, have been, one after another, placed in the seat of honour. The doctrines of faulty positions of the fœtus, mechanical pressure, primitive deformities of the bones, arrests of development, and of the predominant action of certain muscles, have found their supporters and opponents. Might it be that, as sometimes happens, each of those doctrines was true within certain limits, and as many persons who took part in the discussion endeavoured to establish, that congenital club-foot might depend alternately on the different causes which had been assigned to it. Far as I may be from absolute opinions, I am still forced, by the evidence of facts, to reject this mixed doctrine, at least in its pretensions to introduce different and totally opposite influences, such as have hitherto been adduced, to account for this malformation, as the essential causes of congenital club-foot. No doubt, the present epoch is one in which, in the greater number of medical questions, all kinds of theories may take possession, with some appearance of foundation, of the same facts, because these facts are only seen at a distance, and superficially examined. But as soon as observation and analysis have discovered their elements, and determined their number, their differences and relations, then the false theories, which only rest on vague generalities, or on more or less ingenious hypotheses, fall to the ground in order to leave truth in possession of the profound and multiplied results of keen observation. Thus, every critique on false theories, becomes useless, for the demonstration of the truth carries at once the criticism and condemnation of the error. I shall not now, therefore, discuss the value of the different explanations by the aid of which authors have endeavoured to account for the formation of congenital club-foot. I shall be satisfied with explaining the etiology which has been suggested by the observation of material facts, and which appears to me capable of resolving all the difficulties of the question. If this theory be true, it will be well to avoid an useless discussion, which could

only substitute one hypothesis for another; but let it not be deemed true unless it be consistent not only with the collection of facts, but also with the whole of the elements composing these facts, and if it cannot also explain the combinations and varieties of every kind which they can produce.

I. OF CONGENITAL CLUB-FOOT, WHEN OCCURRING ALONG WITH OTHER ARTICULAR DEFORMITIES IN MONSTERS AND IN THE FŒTUS.

Whilst seeking to arrange and study congenital articular deformities from their origin, that is to say, in the fœtus itself, I was struck with this fact, that they are marked, developed, and grouped together in very considerable number in certain monsters, in whom the brain and spinal cord are deficient, or even in those where there are notable alterations and displacements of these organs. I have met with, and described in my paper presented to the Academy of Sciences, a certain number of acephalous monsters with complete spina bifida, in which all the deformities which occur in the articulations were to be found collected together, such as deviations of the spine, luxations of the jaw, the femur, the knee; luxations or subluxations of the elbows, wrists and ankles, club-feet and hands, in fine, displacements more or less extensive and complete of all the articular surfaces. Accompanying this first general fact was to be found another not less general or less distinctly marked: it was this, that all deformities, when carried to the greatest degree on both sides, were accompanied by a general retraction of the muscles going to the altered parts, to a very considerable extent, and the deviations took place in the direction of such retraction. This double fact of deformities of all the articulations and general muscular retraction cannot be accounted for by a faulty position of the fœtus, or compression from the parts surrounding it, because many luxations, such as those of the jaw and femora, evidently cannot be the result of such causes, and because many distortions and articular curvatures took place in a direction op-

posed to those of the ordinary movements, and were carried to such a degree that it was impossible not to impute the deformity of the skeleton to the very active and considerable shortening of the muscles. Thus, in some cases the head was turned completely backwards, and approached the sacrum by means of a double antero-posterior curvature of an extreme degree, whilst the fasciculi of sacro-lumbar and long dorsal muscles directed themselves in a right line between the two extremities of the spine, and formed the cord to its curvatures; it was the same when the leg was strongly bent forward on the thigh, and the patella strongly drawn up on the thigh, the rectus muscle was stretched between the pelvis and patella, thus opposing itself to all reduction of the limb; it was similar when the forearm was bent backwards on the arm, forming an angle posteriorly with shortening and extreme tension of the triceps brachiei, and luxation of the olecranon upwards and backwards on the posterior surface of the humerus.

In these articular displacements, opposed to those which result from even exaggerated normal movements, it is impossible not to recognize convulsive muscular retraction. I have also given examples in which, besides exaggerated and normal articular distortions, there existed angular curvatures arising from consolidated fractures in the shafts of the long bones, corresponding to the retracted muscles: these fractures cannot be attributed to accident, because they are accompanied by general deformity of the articulations, and because in certain cases they are found symmetrically to affect the same bones in each of the four limbs, and the hollow of the angles which they form looks towards the most retracted muscles. Besides, we perceive along them the nerves stretched and shortened, and sensibly hypertrophied. Finally, in examining the remains of the brain and the spinal canal, I have sometimes found the membranes torn, broken, having disappeared in part, with or without remains of the cerebral substance and spinal marrow, and the cavity of the cranium reduced to a very small irregular space formed by the

breaking down of its walls, which were disjointed and partly destroyed. In this first series of facts, so strongly marked, it appeared to me impossible to mistake two results materially explained, viz. the existence of *convulsive* muscular retraction caused by an affection of the cerebro-spinal system, which had destroyed more or less completely the brain and spinal marrow, and the existence of this retraction as the direct agent of all the articular deformities which took place in the direction of the shortening of the muscles. I viewed it as the most exaggerated action of a cause carried to the greatest degree of intensity, which showed itself in a material form in its effects so general, and marked in so energetic a manner, but which cease to be directly recognizable, when it has acted only feebly, locally, or indistinctly. In other words, I think I have discovered, that the general articular deformities were the most advanced stage, and the most general expression of convulsive muscular retraction, and that it was the result of a central affection of the cerebro-spinal system ; whilst that simple congenital articular deformities, confined to a part of the skeleton, as simple club-foot, are only the last stage of this retraction approaching to the zero of action, and produced in these cases by a very limited alteration of the nervous centres, or simply by a peripheric action of one or other of its dependencies. I had already adopted this induction from the perfect anatomical similitude which exists between the club-feet found in certain monsters and those found unaccompanied by other deformity in new-born infants. For we see that the greater number of monsters of the class spoken of, have club-feet precisely similar to those regarded as the type of congenital club-foot in infants otherwise well formed. But this analogy (the value of which we shall now examine) is not sufficient to render my induction irreproachable. It was thus I attempted to render it so. If it be true, I said, that, general articular deformities in acephalous and other monsters, and simple congenital club-foot in the fœtus arrived at its full time, and in other respects well formed, represent the two extremes of action

of one and the same cause. If it be true, that on one side it be altogether the nervous system which has been virtually disturbed in one of its centres, and all the muscles under its dependance violently convulsed ; if on the other, it be only a weak attack of the same affection which has only acted partially on the periphery of the system, and lightly on a single order of muscles, it ought to be possible to find intermediate cases representing decreasing degrees of action of the same cause, from its most exaggerated influence to its most feeble ; and it ought to be possible to follow in this series of decreasing actions from the same cause the parallel series of its effects, which would establish an uninterrupted chain between the products of its greatest degree of intensity and those in which it will be manifested only in an indirect and nearly indistinguishable manner ; so that the general deformity of monsters, and the simple club-foot, are truly related to one another with respect to their common origin, by a series of intermediate cases establishing the insensible transition of one of these extreme cases to another. This is what I have endeavoured to accomplish, and I think I have accomplished its execution. Having given examples of acephalous monsters in which the brain and spinal marrow had entirely disappeared, I also described numerous cases of monsters in which the nervous centres were not entirely wanting, but had been partially destroyed ; those, for example, in which the brain and spinal cord were pushed from their half-destroyed cavities, and had undergone remarkable displacements, and were accompanied by hydrocephalic and hydro-rachidian pouches of greater or less dimensions. The generality of articular deformities observed in the preceding category, coincides with the state of the brain and spinal marrow, viz., luxations and subluxations of all the articulations united with general muscular retraction. In this second arrangement of facts, the alteration of the nervous system could not be mistaken in its relation to the state of the muscles, since the material traces of alteration in the brain and cord, and in their envelopes, still existed, and the retraction of

the muscles, was as well marked as in the instance of the preceding category, where the nervous centres had disappeared under the influence of disease.

In a third series of facts, I collected human foetuses and those of calves, in which hydrocephalus, largely developed, without destruction of the walls of the cranium or vertebral canal, coincided with general muscular retraction, and those permanent deformities before indicated; here was a less marked degree of the affection which had acted with greater intensity in the preceding cases.

Immediately after these I placed those foetuses in which the superior extremities were well formed, whilst the vertebral column and all the articulations of the inferior extremities were the seat of curvatures, luxations, abnormal flexures, and club-foot. In the subjects of this category there was alteration and destruction of a single portion of the cord; that situated most inferiorly characterized by a hydro-rachidian pouch, with fissure, or incomplete spina bifida in the last lumbar or sacral vertebræ. The cord, when exposed, presented in these situations more or less extensive ramollissement, with adhesions or partial destruction of the membranes. Need it be said, that in these cases the extent of deformity was proportioned to the extent of their cause.

In another category I collected a series of foetuses in which the deformities were confined to the right side of the body, and in every instance characterized by the retraction of the muscles coinciding with traces of an old cerebral affection of one side of the brain. This series of facts presented a confirmation of the results furnished by the preceding, viz., the limitation of the deformities being equable to the limitation of their cause.

Lastly, having endeavoured to follow up in the living after-birth, the continuation of the same relation between these two orders of facts, I combined a series of observations comprising cases of decreasing deformity, from the simultaneous deformity of the feet, the hands, and the spine, to the deformity of a single

foot or hand, each of them coinciding with the unequivocal traces of a cerebral affection which had preceded birth. These observations were sufficiently often repeated and submitted to the criticism of scientific men appointed to report on and determine their value.

This uninterrupted chain of decreasing manifestations from one and the same cause, conducting the facts step by step where the evidence was material to those when it commences to be only the result of induction, ought to be sufficient; for our actual physiological knowledge of the relations which exist between the cerebro-spinal system and the muscles, is sufficiently precise and positive to permit us to conclude in seeing, on the one part, a material alteration of one or other of these two centres, and on the other, a general or partial convulsion of the muscular system, that the first is the cause of the second.

Immediate observation being able to convert this induction into incontestible fact, I have had recourse to it, and endeavoured to establish its nature directly. If those changes occur in reality during intra-uterine life, as I have established, it may, and it ought to happen, that some days or months after birth, the same causes occurring should produce the same effects; that is to say, should cerebro-spinal affections develop themselves, they should give rise to retraction of certain muscles, and this retraction to deformities similar to those produced by the same causes before birth. Although the pathological conditions are not exactly the same in these two cases, and we may reasonably suppose that the intra-uterine life is in every way the most favourable, both on account of the greater susceptibility of the nervous system, and the greater laxity of the articulations, to the development of the conditions we here speak of, still I have been able to find a certain number of cases where these conditions are produced after birth, with all the same elements which distinguish them in intra-uterine life. Thus, I have given cases of simultaneous deformities of all the joints, therein comprised luxations of both femora and club-

feet, supervening on a cerebral affection, occurring two or three months after birth in children at first well formed. As to simple club-foot, occurring after birth, and consecutive to a convulsive affection, I have noted so large a number of cases, that I do not think it any longer necessary to enumerate them. In fact, it is almost the only cause which produces them, particularly at the period of dentition. Shall I add, that every day we have under our eyes retractions in which the temporary muscular contractions represent the first degrees and most simple forms of club-feet and hands in children, attacked with simple convulsions.

The meaning of these facts has not hitherto been appropriated, because, being presented singly, they had but slight value, and because the attention not being specially called to the forms affecting the limbs in these kinds of temporary contractions, the close connexion was not perceived between these transient deformities, and those which are genuine and permanent.

Thus then a part of that immense distance which appeared to intervene between the general deformities of monsters, and simple congenital club-foot, is filled by a series of facts, all united together in such a manner that the first affords a key to the second, the second to the third, the third to the fourth, until we arrive insensibly at the last link of the chain of regularly decreasing effects dependant upon one sole and only cause. This first endeavour was the easiest. With the knowledge we possess of the subjugation of the muscular system of locomotion, to the cerebro-spinal system, and with examples in which immediate traces of a material affection of one of these two centres coincident with retractions of the muscles, it became impossible to refuse the novel etiology which I have adduced for congenital club-foot, at least for that which coincides with the other deformities, and with direct traces of disease of the brain or spinal marrow. I would remark before proceeding, that by affections of the cerebro-spinal system, I do not mean

only those which are recognizable by material alteration of the tissues or envelopes of the brain or spinal marrow; I mean also by this term, affections which are only marked by a general functional disturbance, by traces of convulsions with or without paralysis, which in the last analysis depend upon a certain physical modification of the nervous system. If this modification be not recognizable to our actual means of investigation, it is because it is too transitory, and depends on conditions which are not as yet known in physiology. In this category of affections, the characters drawn from functional disturbance, and their general expression, supply the want of material appreciable alteration. Hence, whatever may be the convulsive affection which has produced the series of multiplied deformities in which club-foot forms only a part, this affection evidently causes the active and permanent retraction of certain muscles, and this retraction causes the production of deformities, amongst which club-foot is to be found.

II. ON CONGENITAL CLUB-FOOT, WHEN OCCURRING ALONE IN THE FÆTUS AND INFANT, WITH OR WITHOUT DIRECT MARKS OF A CEREBRO-SPINAL AFFECTION.

There exist two separate states, when club-foot occurs without any other deformity; either it coincides with general traces of an old convulsive affection, or these traces no longer exist, and the deformity is the only exterior effect which appears of the disease. In the first of these, the researches published give a precise signification to the least material vestiges of the nervous disease, and permit of applying to them the interpretation furnished by the most direct alterations. Thus having noticed these cases where total or partial destruction of the brain and spinal cord afford the elucidation to the retraction of the muscles of the limbs, we can discover the same affection in the less marked, more distant, and less significant traces of the convulsive disease. Inequality in the eyes, different degrees of intensity in their visual faculty, exaggerated development of the

cranium, difference of angle in the frontal prominences, drawing of the features, and diminution of one side of the face, relative feebleness or incomplete paralysis of one-half of the body; finally, many other peculiarities less compound and less definable, the collection of which composes the mask of those individuals chronically affected with convulsive affections, all these manifestations, I repeat, are sufficient to permit of the application of the etiology of convulsive muscular retraction to the cases of club-foot which they accompany, furnished by the most evident cases of multiplied deformities in monsters and in the fœtus. But beyond this last fact, where the general manifestation of the cause, the history of which I am writing, appears to stop or to circumscribe its limits in relation to club-foot, commences the most difficult part of my attempt, that having for its object the attaching to the etiology of active or convulsive muscular retraction, those club-feet not accompanied by general characters of a nervous affection. For I acknowledge at once that the proofs given in the first part of this treatise are not sufficient in rigorous reasoning to allow of my claiming simple club-foot as a consequence of active muscular retraction; this requires further elucidation.

First, let us observe how this cause proceeds, when it acts in its slightest degree. The convulsive affection quitting the nervous centres either localizes itself immediately on the muscles of the foot exclusively, or limited from the origin to the circumference of the system, it shows itself in some particular nervous branches by contracting the muscles only to which they are distributed. In these two cases there is nothing, or scarcely anything in the general appearance or entire economy of the patient to indicate the cause of the disease. It is requisite to assist in producing facts to be able to speak positively on them. If these facts really exist, it will be sufficient for those who have directed their observation towards pathological phenomena of this kind, to name them. Physicians accustomed to see many children know, that particularly at the period of dentition and

during certain eruptive diseases, it is not uncommon to observe one or more muscles of a limb or of the neck contract themselves suddenly without any other convulsive phenomena. I shall not speak of many other circumstances, as attacks of rheumatism, common colds, where the same observations are pertinent. In those cases there is sufficient evidence that the disease is carried more or less directly on one or more nerves of the periphery of the system, consequently on the muscles which they supply. What is the result? That the existence of simple club-foot, produced by this localization of a convulsive cause, is no longer a gratuitous hypothesis, but an established fact in the infant, and a probable one in the foetus ; because the organic elements of the foetus and the infant are the same nearly in the degree of their development and their powers of reaction against analogous pathognomonic influences as may well be supposed. This consideration is, doubtless, not sufficient, wherefore it is only given as a transition to proofs of a more direct nature. Thus, then, simple club-foot in the foetus and in the infant, from local muscular retraction, is both a possible and a probable circumstance. Let us see, however, if there do not exist more direct, more material means, and positive characters to place the reality of this fact beyond doubt, that is to say, let us find out if the fact of muscular retraction can account for all the circumstances of simple congenital club-foot, and if this fact reveals itself in its proper characters, clearly appreciable in the parts where it occurs, in such a way as to present in its form, constitution, and the elements which surround it a collection of characters, by the aid of which we can supply the absence of more general characters of the convulsive affection, and pronounce on its origin with as much certainty as in those cases where the alteration of the nervous centres can be materially proved. It is only by fulfilling these conditions, that the chain which extends from the multiplied deformity of monsters to simple club-foot shall become rigorously complete.

Probably I am not the only person who has met cases of

club-foot in which the retraction of the muscles was incomplete and still easy to overcome. These club-feet were well marked, and presented the most characteristic forms of congenital club-foot. When I made an effort to reduce them with the hand, I was surprised to see the foot instantly recover its normal configuration, for some time they remained in this state, then sudden contraction of the muscles, evidenced by the projection of their tendons, reproduced the affection before my eyes, which had existed previous to the reduction. I have observed this fact very frequently. In these cases, is it possible to mistake congenital muscular retraction operating in an intermittent manner, alternately relaxing and quiescent, the subjugation of similar results to the same cause, and which is observed in a permanent form in the ordinary cases of congenital club-foot? For in both cases there are the same forms and the same directions. The degrees and duration alone vary. The same result is repeated almost every instant, affording the same information in the most ordinary cases of club-foot in infants, and principally during the treatment of the deformity. In repose the foot ordinarily presents a less marked degree of club-foot; suddenly the retraction of the muscles on which it depends, increases it under the influence of voluntary movements, or when the child cries, and along with it the club-foot, partially reduced by machinery or diminished by the relaxation of repose, reappears more strongly marked than before, with all the characters of form and direction which depend on the special action, and on the intensity of action of the muscles which are the seat of retraction. This observation may always be made when the subject is affected with double club-foot; almost always one is less strongly marked than the other; in it the muscles still enjoy a certain degree of contractility, and this contractility, temporarily exercising itself, acts in the direction of the existing forms of the deformity, and adds temporarily to those forms a development proportioned to the sum of the new contraction, added to the permanent retraction. I shall add the following fact to

the preceding, which completes their signification. I had to treat twins, each affected with double congenital club-foot, without any external general signs of a convulsive affection. I cured them completely of their deformity. The treatment had ceased about six months, when one of them was seized with a cerebral affection, which in three days brought the two club-feet into the same state they had been in previous to their cure. I treated and cured them anew, and as if the first experience were not sufficient, a year after, the same subject was seized with convulsions, not so strong as the preceding, and one of the club-feet only, the one which had been most strongly marked reappeared, but in a less degree than before. In these three cases, that is to say, at birth and after the first and second attack of the cerebral affection, the club-feet presented themselves with the forms and anatomical elements perfectly identical. However, at their birth these twins presented appearances of most perfect health, and the double deformity was the only trace of any intra-uterine affection. Here we cannot mistake the material and appreciable repetition of a fact which occurred during intra-uterine life, that is to say, at an epoch and in conditions when it was impossible directly to prove it ; but the results, perfectly identical before and after birth, allow of our concluding on the identity of the effects and the identity of their causes.

III. ON THE PROXIMATE CHARACTERS OF CLUB-FOOT, PRODUCED BY CONVULSIVE MUSCULAR RETRACTION.

I have established in my general work on deformities the following law : “ The essential causes of deformities possess a certain specific action with regard to the deformities which they produce, and each of these causes exhibits itself externally by peculiar characters by the aid of which we may in general, from the deformity, diagnosticate the cause, and from the cause diagnosticate the deformity.” This law, which I have applied up to the present, to all deformities of the osseous system, would not be exact did it not exhibit itself in the actual cases, and the

etiology of muscular retraction would be ill-founded if the fact which serves as its basis were not recognizable by well determined specific characters. The conclusion now to be drawn, I am of opinion, accounts for this double condition.

In congenital club-foot we must take into consideration two orders of characters, those which belong to all the anatomical varieties of the deformity, and which are its general characteristics, and those which are united to the different forms which it is susceptible of assuming, which are its special characteristics. These two classes of characters (equally significant and of common expression since they arise from one and the same cause, which they tend to explain), express in fact each in its own limits the fact of convulsive muscular retraction. But in this treatise I shall only enter on the consideration of the relation of the general characters with muscular retraction, leaving that of the particular forms proper to each variety of club-foot for a future essay.

The most prominent character of congenital club-foot which can be proved in all subjects affected with this deformity, is the fibrous transformation of the affected muscles. This change can be seen most easily in the muscles of the calf of the leg. I have established in another work the following: "That the muscles always have a tendency to pass into the fibrous state when they are submitted to a permanent or extraordinary contraction." Besides, the muscles in convulsive muscular retraction, having been actually shortened, are submitted to continued tension, the effects of which increase in proportion to the degree and duration of this tension. We can then see that if the shortening of the muscles were passive or consecutive, as many of the proposed theories would lead us to believe, this shortening would only take place so as to meet the difference in reduction of the space comprised between their points of insertion, in order to adapt itself to this space, and they would suffer no more tension than in the natural state. This character alone has been always sufficient to enable me to distinguish the active muscular, or primitive retraction, from the passive or consecutive retrac-

tion. This double result I put beyond doubt by numerous dissections of chronic deformities of every kind. In congenital club-foot in particular, I have always found the gastrocnemii and solei muscles two-thirds passed into the fibrous state. The fleshy portion was always sensibly shortened, and reduced to a third or fourth of its length. In certain cases it had even completely disappeared, and had given place to strong, knotted, fibrous bands. This result, which I have observed to be very constant, is also to be found in the foetus prematurely born. It cannot then be regarded as an accidental or remote effect of the deformity, but as an essential character of muscular retraction carried to a certain degree.

In the living, the same character is recognizable in the particular form and consistence of the calf of the leg. In very young subjects it already appears without its usual form and consistence; it is very short, more elevated, and as if pressed towards the popliteal space. The leg in children affected with club-foot is characteristic, resembling a cone gradually and regularly diminishing, the base of which, of a diameter much larger than the other parts of its length, corresponds directly to the head of the tibia. Whatever remains of the fleshy part of the calf is hard and resisting. Sometimes forming ridges or angles which can be felt through the skin along the border of the gastrocnemius and soleus muscles, which, by the resistance they give, show beyond doubt their fibrous nature. I repeat that these peculiarities are to be found in very young subjects even when the retraction is slight. In the adult these characters are perfect: the hardness of the calf increases, its projection diminishes in proportion, and this diminution proceeds sometimes even to the disappearance of the entire fleshy structure. The leg presents the same diameter through its entire length. This form externally corresponds to the complete fibrous transformation of the muscles.

To these significative characters I shall add the following: in more than one hundred club feet of which I took the mea-

surement both before and after treatment, I have always remarked that they presented a reduction in length, but an increase of thickness varying in degrees, but which is almost appreciable to the naked eye. The club-foot is shorter, larger, and more collected into a mass than the ordinary foot ; moreover, independent of the special forms proper to each of its varieties, it is generally excavated or vaulted in such a manner as to permit it only to touch the earth, supposing the foot drawn down, by its extremities, that is by the heel and end of the metatarsus. This shortening, enlargement, and arching of the foot, are not owing, as might at first be believed, to the gait of the subject, and cannot be considered as consecutive effects of the deformity : they are primitive characters, because we observe them in very young subjects, as well as those advanced in age, and in the pes-equinus as well as in the varus, and in the different combinations of these two principal forms. As a consequence of these characters also we may remark, that the toes are not prolonged from the metatarsis after the usual manner, but as if strained between the two orders of antagonist muscles, which are too short in relation to the skeleton, they are first elevated on the metatarsal bones, and then flexed in such a manner that their free extremities are applied to the plantar edge of the metatarsus, and protected by its projecting before them like a cushion : this characteristic, with the preceding, are direct evidence of muscular retraction. There are many dorsal and plantar muscles which restrain and prevent the development of the foot in length, which cause it to become arched, shortened, and thickened, and the toes to be bent back on the metatarsus. The best way of assuring one's self of these facts, is by observing them when they are not produced in the most complete and regular manner. When, for example, it happens that the retraction occurs only in the flexors or extensors of the great toe, or in the muscles of the other toes only. The contrast which then exists causes the influence and characters of the cause to be better appreciated in the respective position of the toes. These observations may ap-

pear superfluously minute, and of trifling importance at first, because we have only proved up to the present moment the most apparent and general elements of club-foot, whilst the most delicate, and if I may so express myself, constitutional particularities have escaped observers who have seen in club-foot only one and the same accident of form. But in regarding this with analytic eye, we see the multiplied results of an identical but complex cause, the complexity of which is perfectly represented by the multiplicity of accidents of form to which it gives rise. Finally, in remarking that the muscular retraction, whatever may be the variety of club-foot, generally engages a greater or less number of muscles, we can understand that the result of this simultaneousness of actions ought to be a collection of effects correlative to the multiplicity of elements in the cause. This brings me to the most significant character of muscular retraction.

We see in every variety of club-foot one or more muscles stretched, and in relief under the skin, precisely in the direction of the force necessary to be exerted to produce each variety of the deformity. This connexion between the retraction of these muscles and the form of club-foot which depends upon them, can be rendered more palpable by endeavouring to restore the parts to their natural situation, for in proportion to the efforts made, we can see and feel the contracted muscles project; we may add, that immediately after the section of the same muscles the natural form reappears more or less completely, particularly when the operation is performed on young persons. I could explain this fact more fully, including as it does in itself alone the formula of the special characters of club-foot; but it is necessary here to explain the different anatomical varieties which occur in relation to retraction. This question is intimately connected with the one on which I am treating, and its solution throws new light on the difficulty which I seek to overcome, but on account of the discoveries and controversies into which this subject must lead me, I propose to make it the object of a separate

treatise. For the present I shall confine myself to the remark, that each form of club-foot carries with it muscular projection or reliefs, which show clearly the fact of special retraction localized in this or that muscle, because it is to the special retraction of certain muscles that the different varieties of this deformity are subject.

The fibrous transformation of the muscles, the shortening, elevation, and sometimes disappearance of the elevation of the calf of the leg, its consistence, hardness, resistance ; the shortening, thickening, and arching of the foot ; the turning back or extension of the toes ; the tension, projection, and clonic shortening of the muscles in the direction in which the different species of club-foot are produced : such, in fine, are the general characters which exhibit collectively, as well as individually, the fact of muscular convulsive retraction. I think I shall no longer leave any doubt as to the community of origin which I assign to congenital club-foot, accompanied or not by material traces of cerebro-spinal affections, by saying, that the different characters enumerated above are equally observable in both cases ; in other words, they offer an identity of forms and material accidents, as they proceed to a similar origin. We may observe, that it is not necessary to render this demonstration accurate, that every example of club-foot should contain the whole of the characters which I have described ; but a collection of these characters, amongst which one or two may be wanting, or be only incompletely marked ; because the identity of cause does not necessarily imply an equal intensity of action or equality in the number or degrees of the results.

V. ON THE CONSTITUTION AND ESSENTIAL SIGNIFICATION OF CONVULSIVE MUSCULAR RETRACTION.

The fact of convulsive muscular retraction, considered as a fact, and as a cause of congenital club-foot, cannot then be doubted, whether we regard it in its own existence and under the immediate influence of the nervous affection which causes it,

or in the characters to which it gives rise. But under either of these considerations, it cannot be regarded as a simple and absolute phenomenon. Its constitution, eminently complex and variable, has a signification as different in regard to its origin as in regard to the immediate results which it produces. The first symptom which strikes us in the consideration of muscular retraction is the shortening of the muscle. However, this symptom is not alone, and does not always act in the same manner. To this symptom, the most directly appreciable, are united two others which it is necessary also to specify.

The nervous affection which causes muscular retraction, and which precedes it, acts differently and with different results according to its mode and degree of action. In convulsions of short duration the muscles are retracted but to a feeble degree, and only during the continuance of the convulsion. In a more intense degree, the retraction continues in a permanent manner after the convulsion, and the muscles are deprived besides of a part of their voluntary contractibility ; in a still more intense degree of the nervous affection, the retraction of the muscle begins to diminish : it can be even overcome for a moment, but the voluntary retraction is lost more and more every moment till it is entirely gone. In the last degree of the action of the cause which produces these different forms and degrees of the same state, another symptom occurs in appearance completely different, and which is only the last result of the nervous affection producing muscular retraction, viz., complete paralysis of the muscle in which it is seated. In this case the muscular fibre cannot be immediately shortened where the retraction has been overcome ; but the muscle appears struck with inactivity, deprived of all kinds of motion, and having no other characters of vitality than those shared in common with rudimentary and amorphous tissues. Incomplete temporary retraction, complete retraction with permanent shortening, and incomplete paralysis and retraction without constant shortening, and com-

plète paralysis, are only effects from the same cause influenced by different modes and degrees of action. This is not an hypothesis, but the result of observations continually applied in all stages and modifications of this disease, and to all the varieties and shades of deformity which it causes. What proves this is, that in the same subject affected with numerous deformities, sometimes one of the feet is completely paralysed, while the other is affected with common club-foot. Sometimes, in the same club-foot, the muscles are seen retracted with very considerable shortening without sensible paralysis, in juxta position with other muscles not shortened but completely paralysed. Lastly, one of the feet presents sometimes a state intermediate between fixed contraction and paralysis, that is to say, contraction and incomplete paralysis, whilst the other foot shows one of the two preceding states in its most strongly marked degree.

These facts I have observed a great number of times, and have published a numerous series of examples. It is then useless to enter on more lengthened details on the essence of the phenomena of retraction, in order to show the intimate affinity existing between these different forms of the same state, and to prove that convulsive retraction comprehends in it the elements of paralysis, that is a peculiar form of paralysis, and a state passing into paralysis. The fact just cited establishes this matter sufficiently. We can call to mind also, that in many persons affected with hemiplegia, the muscles have presented a succession of these different conditions, convulsions, spasmodic contractions, and paralysis ; and that certain of them, a long time after the attack, present the combination of retraction with paralysis. What then is the result of studying the etiology of deformities, and of club-foot in particular ? It is, that muscular retraction is no longer a simple and absolute fact ; that the muscles behave themselves differently with regard to the joints which they are destined to move, according as they are simply retracted with little or no paralysis, or completely paralysed. Here is now a second element to introduce in the appreciation of the

effect of the convulsive affection on the muscles which it attacks, and in the appreciation of the action of retracted muscles in the formation of club-foot. There is a third which proceeds naturally from the two former.

When we examine attentively what occurs in the development of congenital club-foot in infants, we readily perceive that the deformity does not present at its commencement the degree which it assumes afterwards, that it does not remain stationary, but often augments with the growth, and in direct ratio to the growth of the subject. All authors who have studied club-foot, and who have remarked this fact, explain it by hypothesis which I think it useless to examine here. The important matter, however, is, that many of them have stated the fact of the increase of the club-foot in connexion with the increase of the skeleton. This new element for etiological demonstration of club-foot appeared at first to belong to the field of muscular retraction considered in immediate activity, and would be really the case if the convulsive retraction did not exercise upon the muscles any other action than that of shortening produced at once without any effect on the future development of the muscles. However it is not so ; the muscles which have been the seat of congenital contractions always remain proportionally shorter than similar ones which have been unaffected, their relative shortness has reference not only to the fact that they have been contracted at a given time, but to this, that they cannot follow the development of the skeleton ; and also to this, that the muscles are not animated with a force of development equal to that of the other parts. These muscles carry inherently an element of paralysis which prevents them following the elongation of the osseous system. Does not this fact confirm the connexion which I have established above between paralysis and contraction considered as an approach to paralysis ; the radical force of the retracted muscle is diminished by the affection which determines the retraction, and this diminution makes itself sensibly felt during the whole duration of the normal development

of the other parts, and even then it does not stop altogether. I have seen cases in which certain muscles primitively retracted had been so much deprived of their power of increasing, that after puberty they had hardly acquired the dimensions proper to early infancy. Insufficiency or arrest of development consecutive to muscular retraction, forms then the third element of muscular retraction, and consequently a third element amongst the essential causes of club-foot. We may add, that in cases where paralysis is complete the muscle becomes diminished and atrophied, whilst the body is growing, and does not preserve any longer sufficient consistence to give opposition to the growth of its antagonists. This fact, placed beyond doubt by the anatomy of the muscles, as any one may observe, contributes to throw light on the cause of the external forms of many varieties of club-foot.

Independently of the three influences which we have mentioned, viz., retraction, properly so called, or shortening of the muscle; paralysis and consecutive arrest of development, which constitute the complex fact of retraction, and compose the etiological formula of club-foot; there exist two other complementary influences connected to each of the three essential elements, varying the expression of the results: I mean the *degree* of each of them and of their *situation* in relation to the muscles which they occupy. It is not an indifferent matter that the shortening of retracted muscles exists to this or that degree, but it is evident, on the contrary, that on the degree of shortening depend certain characters and directions of the club-foot; the same may be said of the seat of the retraction. The question to be decided is, whether all the muscles of the foot, or some of them only, may be the seat of the primitive shortening. For, *a priori*, there could be no reason why this or that muscle of the leg should be more exempt from this pathological state than any other, since all receive nervous branches coming from the same trunks. The seat of retraction in the different muscles of the foot is a fact placed beyond doubt by observation

and experience. I have given a great number of cases in which could be distinctly seen the combination of different modes and different degrees of retraction alternately or collectively, occupying the different muscles of the leg and foot. It is sufficient to know the possibility of this fact in order to show its frequency in most common cases. Numerous examples shall be given in the history of the different varieties of club-foot. The shortening, paralysis, and arrest of development consecutive on retracted muscles, considered as inherent to the complex phenomenon of retraction, the situation and degree of this retraction in relation to the muscles which it occupies, such are the elements of the general formula of the etiology of congenital club-foot.

In what precedes, I have only had in view the determination of the primitive elements of this etiology, which act previous to birth, and which proceed directly from the essential influence of this cause. At a later period, progression and all the movements of the foot come to add a secondary influence. I have purposely avoided accounting for the action of consecutive causes, in order not to complicate and obscure the theory which I had to present. I shall, however, specify in a more precise manner the degree of action of the secondary influences produced by the intervention of these assisting causes.

V. DOES CONGENITAL CLUB-FOOT EXIST PRODUCED BY OTHER CAUSES THAN ACTIVE MUSCULAR RETRACTION ?

The question is here alone concerning congenital club-foot ; consequently the different influences which could give birth to consecutive club-foot have not been taken into consideration. I shall merely mention, as a thing perfectly admitted, that the different diseases of the bones and articulations of the foot, may more or less alter its form. Scrofula, rachitis, wounds, inflammation of the muscles, and other morbid causes, supposing that they could reach the foetus, can determine subluxations and deformities of the foot. The name of club-foot has been impro-

perly given to many of these, but these deformities do not present any of the genuine characters of true club-foot ; besides they have marks of their origin—the traces of scrofula, rachitis, and injuries cannot be mistaken. We may remark besides, that were the foetus submitted to the accidental causes we have mentioned, such as wounds, contusions, and other analogous influences, these causes would only act in determining contraction of the muscles, consequently they would enter into the etiology which I myself have established. They must be counted under muscular retraction. Whether the causes of this retraction be general or local, as the retraction is owing, as I have said, to a lesion of the nervous centres, or if it be the result of a local cause acting on one or more branches of nerves, it is still muscular retraction which comes in play, and which is the cause of club-foot. Consequently, in establishing the general etiology of congenital club-foot, on this fact I have ruled in advance all the influences of whatever nature they may be, which can give birth to muscular retraction. There is then no real foundation in the separating of things which unite in the same fact, when muscular retraction, cerebro-spinal affections, rheumatism, contusions, wounds, inflammations of the muscles are proposed successively as different causes of congenital club-foot. I can state the same for the opinions of Duverney, and Delpech, which are only partially true, because they express one of the consequences or one of the attributes of the fact of muscular retraction which they had not suspected. The first speaks of the unequal tension of the muscles and ligaments as the cause of club-foot, which is at least, as far as regards the muscles, empirically exact ; the other, of the insufficient development of the muscles of the calf combined with a primitive irregularity of the two spinal fasciculi, and of the two halves of the body, which is perfectly true as far as regards the insufficiency of development of the muscles, but is not correct in what concerns the hypothetic explanation of this part of the fact. But I repeat that these opinions are not true, except where they bear, contrary to the will and

forethought of their authors, on the fact of muscular retraction, of which they express only one of the attributes.

Having shown the truth in the causes cited, with some appearance of foundation, outside the field of etiology peculiar to myself, is only a small fraction, a dependance on this etiology, it remains for me to examine the really different causes which have been admitted up to this period, and which still have their partisans. These causes may be reduced to three, viz., a primitive displacement of the osseous surfaces of the foot, (doctrine of Scarpa); the attitudes of the foetus, arising from determined mechanical pressure whether of the uterus or external influences, which comes to the same thing; finally, arrest of development. I have said at the commencement of this treatise, that the truth contains the criticism of error. Let us place for an instant the fact of muscular retraction beside these three orders of hypothesis, and we shall see if there be need of any troublesome demonstration to prove the vagueness and weakness of the latter when compared with evidence of the accurate truth of the former.

Scarpa raised the very question in other terms which he sought to resolve, without perceiving it when he established that the displacement of the articular surfaces in club-foot is primary, the shortening of the muscles secondary. But what could have caused the displacement of the bones? what, in other words, was the cause of the club-foot? The doctrine of Scarpa was not then at unity. No where could the aphorism *sublata causa tollitur effectus* be more properly applied. For when the section of the retracted muscles is made, the articular surfaces recover their relations with the greatest facility. Those who have followed the theory of Scarpa, and have sought to perpetuate his doctrine, appear to me to have shown less of judgment and sagacity than of regard for a great name.

The theory of mechanical pressure and of faulty positions of the foetus to whatever cause they may be attributed, have a show at least of real influences, but they do not answer expectation. It is true, that the foetus may be incommoded, pressed upon,

and its extremities held in faulty positions ; but these causes, real as they are, can they produce true club-foot ? I reply, without hesitation, that they cannot. The mechanical pressure of the uterus produces a certain deformity of the foot, which has been confounded with club-foot ; but this deformity, like all the rest, carries the traces of its origin. Starting with the conviction that there might be cases in which the narrowness of the uterus, in proportion to the foetus, might exhibit itself upon the latter, I examined for many months all the foetuses and new-born children which came from the Maternité, at Clamart. In a very large number of them, I saw a peculiar disposition of the feet quite characteristic of the cause producing it. This consisted in an extreme flattening of the foot transversely, so that there was no longer a plantar or a dorsal surface ; no hollow at the tarsus or metatarsus, neither elevation of the instep, nor appearance of heel ; in a word, none of those elevations which give character to the different parts of the foot. The whole consists of a kind of fleshy layer, the superior border of which confounds itself with the leg, the inferior is free, and holds the place of the plantar surface. This deformity of the foot has, therefore, its own peculiar characters, and has not any of those belonging to true club-foot. Thus the heel is not elevated, nor are the muscles of the calf rendered tense, nor the calf itself gathered up and shortened ; no tendon is seen projecting under the skin ; when an attempt is made to restore the foot, it is evident that all the parts equally participate in the irregular form which it is necessary to overcome ; that all resist equally, bones, ligaments, muscles and skin, in such a manner that we have under view the exact image of a body flattened in all points of its two opposite sides by a cause, which has compressed it uniformly, following a single action, and not a series of irregular plans and changing directions, as must occur to form the assemblage of elevations, depressions, and contorsions, the combination of which constitutes club-foot. Let us add, that for the treatment of these special deformities it is

sufficient to employ some few slight means continued through a certain period, and that the cutting of any tendons does not accelerate the restoration of the natural form.

What has been said anticipates my answer to the second question proposed, whether pressure of the uterus on the foetus could produce true club-foot. It would puzzle the most intelligent person to produce on this elliptical or circular body by pressure, effects always bearing the same characters, the appearances of the surface so rigorously in relation to the direction of the retracted muscles, the pes equinus, varus, valgus and talus, and all the combinations which result from the association of their different forms with one another, without causing a remark that the thickening of the foot, the extension and turning back of the toes, the contraction of the calf, the particular form of the limb, and lastly, the fibrous transformation of the muscles, would with difficulty accord with the doctrine of faulty positions of the foetus in the liquor amnii, and of its pressure against the walls of the uterus.

I consider it useless to dwell on the theory of arrest of development. I said to myself, that at a period when facts are only observed from a distance and examined in their most superficial appearances, it might serve as a pretext for all kinds of theories; but though the doctrine of arrest of development has been useful to science in other respects, in club-foot it does not afford the slightest pretext for its adoption.

VI. RESUME AND CONCLUSIONS.

This treatise, intended to establish a new etiology of congenital club-foot, contains the explanation of the analysis of a fact which has not hitherto been studied in relation to congenital deformities, viz., convulsive muscular retraction considered as the essential cause of congenital club-foot. I have placed the existence of this fact beyond doubt, by a great number of observations collected from monsters and foetuses; observations in which we can follow step by step the correspondence between

muscular retraction and the material alteration of the cerebro-spinal system, from the complete destruction of the brain and spinal marrow, to the alteration of a single circumscribed point in one of these centres. I have shown that each of these cases of the best characterized congenital club-foot coincident with a great number of other articular deformities, are, as well as the deformities, the result of convulsive muscular retraction, characterized by an extreme shortening of the greater part of the muscles of the trunk and limbs.

Passing to the study of those cases of simple club-foot, in which the retraction is limited alone to the muscles of the limb, I have shown that in those cases, where the convulsive affection has at first been general, showing itself by unequivocal traces in the features of the face, conformation of the skull, the direction of the eyes, inequality of power in the two sides of the body, or where it has only acted locally, and is confined to some nervous branches, and consequently to some muscles, this state constitutes simple contraction. In the second category of facts we can recognize the peculiar nature of the deformity by means of the immediate characters of muscular retraction in relation to deformity of the skeleton. These characters are of two kinds, general characters, which belong to all varieties of club-foot, and especial characters, which are peculiar to each of its varieties. The general characters, the only ones which I could indicate in this treatise, are the following: in the dead body, the fibrous transformation of the retracted muscles, and principally those of the calf of the leg, the natural consequence of continued and exaggerated tractions to which the muscles are submitted. In the living body the change of form and tissue of the calf, which is flattened, shortened, and elevated as if it were gathered up into the popliteal space with hard and resisting edges, the shortening, arching, and thickening of the foot, the turning back or extension of the toes, the exact relation between the form and direction of the deviating parts of the foot and the contracted muscles, which are stretched resisting

and projecting under the skin; finally, the almost immediate restoration of the regular form by the section of the retracted muscles. Seeking then to determine the constitution and essential signification of the phenomenon of convulsive muscular retraction, I showed that this phenomenon is neither simple nor absolute, but compound, and of variable expression, according to its different stages. Thus I showed that convulsive retraction comprehends three distinct elements, which have each their own peculiar influence, viz., the immediate shortening of the muscle, a certain degree of paralysis, and a consecutive arrest of development, which prevent it from proceeding in its growth with the growth of the skeleton, and which increases, during the growth of the subject, the primitive shortening of the retracted muscles; so that every deformity examined after the access of the disease which has caused muscular retraction is the result of three elements constituting this retraction. Besides, I have shown, that these three elements exercise a variable influence on the development, form and increase of club-foot, according to their degree and situation, and to the different muscles of the foot and leg in which they occur.

In the latter part of this treatise I tested the question whether there existed other causes of congenital club-foot, or if the causes formerly admitted could give origin to deformities presenting the characters which I have attributed to club-foot owing to muscular retraction. Recalling to mind the law which I have established on the specific nature of the external characters combined with the specific nature of the causes, I have shown that amongst the influences admitted by authors, some are purely imaginary, and merit no consideration, others are real, but are either the indirect discoveries of more or less distant consequences of muscular retraction, or of consequences implied under muscular retraction, or they constitute the real causes of deformity, but the deformities to which they give rise have not the true characters of genuine club-foot, and on the contrary present characters peculiar to the cause which deter-

mines them. Amongst these last I have cited a deformity of the foot, produced by compression of the foetus in the uterus, a deformity which has not been specified hitherto, and which consists in a general transverse flattening of the foot, in which all the parts of the extremity equally participate, bones, ligaments, muscles and skin, in such a way as perfectly to explain the uniform mode of action of a continued mechanical pressure.

Having submitted to the Academy the contents of this memoir, and the principal facts which it contains, I shall close with the following conclusions :

1st. That congenital club-foot is the product of convulsive muscular retraction, or contraction of the muscles of the leg and foot. This retraction may be produced by a general or local affection of the nervous system.

2nd. Congenital club-foot, when wanting general or direct traces of a convulsive affection, carries with it immediate characters, by the aid of which we can always recognize the nature of its cause.

3rd. The fact of muscular retraction is complex ; comprehending three distinct elements ; immediate shortening of the muscle, a certain degree of paralysis, and consecutive shortening or arrest of development of the retracted muscle ; each of these elements concurs to perform its part in the formation of club-foot, and acts differently according to the degree and seat of the retraction in relation to the muscles which it affects.

4th. There does not exist any other cause of congenital club-foot except convulsive muscular retraction ; other circumstances capable of deforming the feet before birth, impress their own peculiar characters, which makes them easily recognizable, and prevents their being confounded with genuine club-foot.

ART. III.—*Some Cases observed at the Fever Hospital, Cork-street, in March last, during the Prevalence of Influenza.*
By THOMAS BRADY, M.D., one of the temporary Physicians to the Hospital.

[Read at the Association of Physicians, May 3rd.]

DOUBLE DIAPHRAGMATIC PLEURISY, LATENT.

THERE are few circumstances connected with the history of diseased action more remarkable than the obscure, or, as it is called, *latent* manner in which at times it runs its course. Indeed pain, or some other obvious functional derangement, is so usual, and seems so natural a result of disease, that were it not for the aid of pathological anatomy, we would be led to conclude it was an invariable one. But every physician is now familiar with the fact, that in the examination of the body after death, we occasionally find the effects of disease, the existence of which was not revealed by a single symptom during life. Of the diseases that occur in this latent form, there are some that almost always pass through part at least of their course without producing any very obvious functional disturbance, and whose latency, probably for this reason, excites less surprise; whereas there are others which are as usually characterized by acute pain, and other well-marked symptoms, both local and constitutional, and yet occasionally run through all their stages, produce extensive organic changes, and even death, without pain or any of their usual symptoms. The following is a striking instance of this class:

A man of the name of Walsh, about 30 years of age, strongly formed, and naturally very robust, but whose health had been greatly impaired by intemperance, was admitted into hospital on the 23rd of January, for a feverish attack which had supervened on general dropsy, (anasarca, ascites). The febrile symptoms yielded in a few days to antiphlogistic measures, and under the influence of mercury the dropsical effusions also rapidly disap-

peared ; his appetite returned, he was put on full diet, and was supposed to be proceeding favourably to convalescence. On the 1st March, when I saw him for the first time on taking charge of the ward in which he lay, he had been for three weeks on full diet including porter, had taken no medicine for a fortnight, had no cough, slept well, and lay with ease on either side, and, in short, appeared to be regaining as good a state of health as could be expected in such a constitution, profoundly altered as it obviously was by his habits of intemperance ; it was indeed at this time plain, that the liver was enormously enlarged. In the course of the next day, however, a change suddenly occurred without any obvious cause, except that he had exposed himself to cold ; he at first complained of weakness, lassitude, and general uneasiness, which was soon followed by a feeling of sinking or approaching dissolution ; these symptoms continued to increase, and the following morning he was in a state of complete prostration, and evidently dying. He died during this day, March 3rd, having complained of nothing from the time of this change but weakness and a feeling of sinking.

Dr. Jackson, under whose care he was when he came into hospital, assisted me in the examination of the body.

In the abdomen we found the enormous liver I exhibited at the last meeting of the Association. It is a remarkable specimen of the large *yellow* liver of the drunkard, in which the enlargement of the organ is general and uniform throughout, its structure much more dense and resisting than natural, and its colour pale yellow.* The other abdominal viscera were healthy ; there was no fluid in this cavity.

In the chest, however, pleuritic effusion existed at both sides. The left contained a pint of purulent fluid, with numerous particles of albuminous matter floating in it. The pleura

* This degeneration of the organ is, I believe, only seen in persons of intemperate habits who die young, and is probably an early stage of the more usual, small shrunk, indurated and deformed liver of the whiskey drinker.

covering the base of the lung and the upper surface of the diaphragm was of a florid-red colour, and both were covered with flakes of lymph. This was extremely soft, and did not present the slightest trace of organization. On cutting into the lung, we found the lower lobe completely disorganized; in its inferior part it was infiltrated with pus, and so soft that it broke down under the least pressure; above it was solidified, but softer and less resisting than a hepatized lung. The other lobe was perfectly healthy. The appearances in the right pleural cavity were quite similar, but in a less degree. It contained about six ounces of a similar fluid, and the base of the lung and corresponding part of the diaphragm were covered with similar flakes. The lung itself, however, was only somewhat congested in its inferior part. The heart was small, pale, and soft, but in other respects healthy. There was no fluid in the pericardium.

Though pleuritis has been observed in this obscure and insidious form more frequently perhaps than any other painful affection, still the above must be admitted to be a very remarkable instance of this kind. In general, when the pleura lining the diaphragm is inflamed, the local and constitutional suffering is greater than in the more common forms of the disease, but in this case we had double pleurisy, the inflammation at each side involving the diaphragmatic pleura, and yet not a single symptom during the time he was in hospital, five weeks, distinctly referrible to disease within the chest.

A question naturally suggests itself here, when did this disease arise? Did it exist when the patient was admitted into hospital—was it the source of the febrile excitement observed at that time—or did it originate and attain this degree during the two last days of life? It is not, I believe, possible to come to a satisfactory conclusion on this point. My first impression was, that it had commenced about the time of admission in a latent form, and had thus escaped notice. The complete absence in

so severe an attack of any of the usual symptoms all throughout, together with the apparently recent character of the effusion, the softness of the false membranes, and want of any trace of organization in them, might seem inconsistent with this view. But the former may probably be sufficiently accounted for by the occasional latency of this disease; and with respect to the latter it is well known, that the period at which the effused lymph becomes organized is very variable, and the process would most probably be much retarded in such a constitution as we had to do with here. These circumstances, however, as well as some cases which occurred about the same time, induced me to hesitate in the adoption of this opinion. The influenza was at the time at its height, and several patients in hospital had been attacked by it; the man, as I have already said, had incautiously exposed himself to cold, and hence, looking at the cases to which I alluded, and some of which I am now about to relate, it seems to me not improbable that he may have sunk under an attack of the epidemic of only a few days' duration.

THE INFLUENZA.

The influenza by which we have been recently visited, like all former epidemics of the same kind, was characterized by the extreme languor, lassitude and depression, that accompanied even its slightest attacks, and which in general continued long after the other symptoms had disappeared; it was distinguished from all those I have had an opportunity of observing, by its greater mildness, and the absence in most cases of any disease of the organs within the chest. In the great majority of cases the mucous membrane of the eyes, nose, and fauces was affected; in many, this affection extended to the larynx and trachea, producing hoarseness, and at times complete aphonia; in all those parts it seemed to be rather a disease of relaxation than of inflammation, and to be more quickly and more effectually removed by stimulants than by antiphlogistic measures. In those cases even low diet was injurious. In some instances, there

was great irritability of stomach, as evidenced by vomiting and frequent retching ; and here also effervescing draughts with small doses of laudanum were much more effective than leeching and blistering, both of which I saw employed without any benefit. It seldom, as I have remarked, extended to the chest, at least when the lungs were previously sound ; in persons indeed affected with chronic bronchitis, emphysema of the lungs, &c., the old disease was invariably aggravated, and some of this class of patients died in the hospital of a kind of suffocative catarrh. There were, however, cases in which the disease seemed to fall entirely upon the lungs when these had been previously healthy, and it is to those cases I wish to direct attention. They were not frequent, and were sometimes at first rather obscure, and therefore very liable to be mistaken or overlooked. In every instance that I saw, it was the parenchyma of the lung or the pleura that was attacked, and not the bronchial mucous membrane, as might have been expected.

Benjamin Allen, tailor, a young man, slightly formed, but naturally healthy and temperate, was admitted into hospital Monday, March 15th. The previous Saturday he had been quite well, and had dined heartily, but soon after was rather suddenly attacked with shivering, frequent sneezing, and pain across the eyebrows, and at length became so ill, that he was obliged to quit his work. Next day he was much the same, but felt he said very weak and low ; in the course of the night he was seized with a stitch in the side, which soon became most acute. On Tuesday, 16th, when I first saw him, he seemed to be in great agony from the pain ; he lay on his back slightly inclined to the right side, and with his knees drawn up ; his face was flushed, his eyes bloodshot and watering ; respiration very quick and short ; pulse 120, hard and wiry ; some cough, with scanty expectoration of transparent frothy mucus. Cannot make a full inspiration on account of the pain ; the sneezing still occurs occasionally, and aggravates very much his suffering. On stripping him and viewing the chest posteriorly,

the right side was at once seen to be nearly immoveable. On percussion the greater part of this side of the chest, posteriorly and laterally, was quite dull. In the lower part no respiratory murmur could be heard; higher up, and over a considerable space, bronchial respiration was distinctly audible, both in inspiration and respiration; towards the upper parts the natural respiratory murmur became perceptible, but extremely feeble. There was no crepitating ronchus in any part of the lung. In the whole of the left lung respiration was puerile.

There could be no doubt we had here pleuritis with considerable effusion, which seemed to have followed an attack of influenza.

He was bled largely, and ordered two grains of calomel every fourth hour.

17th. The blood did not exhibit the slightest trace of the buffy coat, a circumstance, I believe, very unusual in pleuritis; the pain of the side, though at first relieved, was now as bad as ever. Stethoscopic signs unchanged; pulse 120; headach so severe that he wished to have his head shaved. Bleeding to be repeated; pills continued; the hair to be cut short.

18th. The blood to-day is cupped, and covered with a thick inflammatory crust. He feels much easier. No pain except on deep inspiration; pulse still 120. To continue the mercury.

19th. To-day he is not so well. The pain has returned in ordinary respiration, and he has been very restless and uneasy throughout the night. Bleeding to be repeated, and pills continued as usual.

20th. Much better in every respect; no pain even on deep inspiration. On examination we found respiration was bronchial in the lowest part of the right side where it had been extinct.

21st. Continues to improve; omit the mercury.

22nd. Slight ptyalism; he feels nearly well. Bronchial respiration has disappeared from the greater part of right side and been succeeded by a feeble sound of respiration.

From this day he improved steadily. The respiratory murmur became distinct in every part of right lung. No friction sound was at any time heard.

In the next bed to Allen lay a man of the name of Kirwan, a sawyer, aged 19, who had been a whiskey drinker, and subject to colds, but having taken the pledge a year ago, had enjoyed good health till about ten days since, when he was attacked with some of the usual symptoms of the influenza; languor and debility, pain in the head, hoarseness and complete loss of appetite, which obliged him to keep his bed for two days. March 17, feeling somewhat better, he went out, exposed himself to cold, and fatigued himself walking in a temperance procession. In the evening he had a rigor, which was followed by feverishness, feeling of stuffing in the chest, and frequent cough. These symptoms increasing continually, he was admitted into hospital 21st March, and on the 22nd presented the following symptoms:

Constant harassing cough, with occasional copious expectoration; sputa thick, viscid, whitish, and streaked with blood; pain in the lower part of left side of chest, on making a deep inspiration only; pulse 96 and full; great thirst; irritability of stomach, so that he vomits almost every time he drinks; complains chiefly of the weakness or depression, and of the stuffing in his chest.

The left side of the chest, from scapula down, is quite dull laterally and posteriorly. Over the greater part of this dull space, bronchial respiration is heard with here and there a puff of the crepitant ronchus; at the lower part of the chest, however, no respiratory sound could be heard even on the deepest inspiration, which produced pain in the part where respiration was extinct. The sounds of the heart were loudly heard over all the posterior part of this side. In the opposite lung respiration was puerile, and also in the top of the left lung, especially in front.

Bleeding and calomel as in Allen's case. The stomach

was so irritable I did not hesitate to prefer mercury to tartar emetic, which I would probably have employed but for this reason. I considered the case pleuro-pneumonia, the lower lobe of the lung being hepatized.

23rd. No change of any importance ; blood buffed. Bleeding to be repeated, and pills continued.

24th. Feels greatly relieved, especially from the stuffing in chest ; cough not so frequent ; rusty coloured expectoration very abundant and very viscid.

26th. Has improved rapidly during the last two days ; pulse 80 ; tongue clean ; no pain on deep inspiration ; lies with ease on either side, and has some appetite ; cough not so frequent, and expectoration free. A large crepitant ronchus (the ronchus redux) is audible over different parts of the left side posteriorly ; respiration in right lung is no longer puerile.

In these circumstances I thought it unnecessary to push the mercury farther, (the mouth was not affected,) and under a rigid regimen he improved steadily, and left the hospital cured.

A case I saw in private about the same time, exhibits perhaps still more evidently the occasional connexion of pleuritic inflammation with this epidemic.

In a small community of religious females, nearly all the members were attacked almost simultaneously with the influenza. In some, pain across the eyebrows was the most distressing symptom ; in others, retching and soreness at the pit of the stomach ; and in others teasing cough and hoarseness, or rather occasional aphonia ; in all, the general feeling of uneasiness, of weakness, and depression was quite disproportional to the other symptoms. The cases, however, appearing to be on the whole slight, I ordered some mild remedies, and did not again call for a few days, when I found all improved except one young lady, who I was informed had been suffering very much since the evening previous, from constant dry cough, and pain in the side. On examination this proved to be a case of pleuritis of the left side

of chest, without any bronchitic or pneumonic complication that I could discover, a case indeed precisely similar to Allen's, but much more severe.

Viewing Walsh's case in connexion with such cases as those just detailed, it seems, as I have [said, not improbable, that an attack of the epidemic, a few days before his death, may have produced a pleuritis, which in his shattered constitution ran rapidly and unfelt to its fatal termination; and certainly under all the circumstances, in the present state of our knowledge in reference to latent diseases, we would not be justified in adopting unreservedly the opinion, which probably first suggests itself to every one, that this affection had originated five or six weeks previously.

ART. IV.—*Observations on the State of Medical Science in Egypt, ancient and modern.* By RICHARD STRONG SARGENT, M.B., Member of the College of Physicians in Ireland, Physician to the Sick Poor Institution, Dublin Female Penitentiary, &c.

[Read at the Evening Meeting of the College of Physicians, in March, 1841.]

EUROPE and Asia in all modern ages have gloried in a social condition immeasurably elevated above what obtained in Africa; yet from the most permanent of traditional records, religious rites, and from the most unchanging of social arrangements, such as the institution of castes, and from the ascertained origin of the pure and mixed sciences, it is rendered more than probable that the germs of civilization, in whatever degree of expansion they now exist in the more favoured portions of the globe, have been received by them from an African source, that source is Egypt. This country, in whatever aspect it be viewed, possesses an interest peculiar and distinct from that of every other nation. The shadowy grandeur of its primeval civilization, the memory of which has been preserved, not by vague and fabulous traditions and fantastic legends, which bear along

with them their own refutation by their absurdity, but by stupendous works of art, of which, if some are mere monuments of vastness of design, and miracles of architectural performance, others are most assuredly records of a high degree of social and national advancement; the splendour of its old military renown; the strange admixture of scientific truth with barbaric ignorance and degrading superstition exhibited in its institutions; its frequent connexion with the chosen people of God, either as friends and allies, or as enemies and persecutors; its being so largely identified with prophecy; nay, even the mere physical peculiarities of its situation, soil, and climate; all these considerations unite in giving to the land of Egypt an interest and an importance which can belong to no other region of the world. Does the philosophic historian and antiquarian endeavour to retrace the progress of national and social development, as at present existing in the most civilized nations of Europe and of Asia? He is conducted, on the one hand, through the middle ages of European history to the Roman and Grecian social constitutions, and thence to the valley of the Nile, as the source of the wisdom exhibited in the institutions of a Cecrops, an Inachus, a Pelasgus, and a Cadmus. Nor was it merely by these primitive colonists that Greece became enlightened by the proverbial wisdom of Egypt, but from the same source did its greatest legislators, historians, and philosophers derive those stores of information, which, combined, adorned, and reflected by Grecian genius, conferred such glory on their country, and such imperishable renown upon themselves. I need only refer to the names of Lycurgus, Solon, Pythagoras, Plato, and Herodotus. Nor is there less convincing evidence of the eastern forms of civilization having been originally derived from an Egyptian origin, but the details of this evidence were unsuited to the present occasion. In like manner, if the mathematician, the astronomer, or the physician, revolve back the records of his favourite science, to discover its first dawnings, he will find them to be ultimately derived from the same fertile source of mental

and practical philosophy. And this consideration leads me to the immediate object of this essay, which is to lay before the College some brief observations on the state of medical science in Egypt at the more remarkable periods of the numerous dynasties which have existed in that marvellous land.

The duties of the legislator, natural philosopher, religious teacher, and physician, were in the earliest ages, of perhaps all nations, combined in the person of the same individual or class of individuals; hence the knowledge acquired by them, and transmitted unchanged, and frequently unimproved, to their successors, was strangely confounded and corrupted. This was particularly the case with the ancient Egyptians; their priesthood propounded laws, regulated the calendar, exercised the mathematical arts that the physical peculiarities of the country rendered necessary, regulated the religious belief and ceremonies, and practised the healing art. Thus the magical mysteries of their theology became mixed with their medicine; and in the brief notices of them which have been transmitted to our times, the subjects are so mixed, that it is not easy to separate the one from the other; nor is this matter of mere induction, but it is expressly declared by the scholiast on the *Tetrabiblos* of Ptolemy, “that their ancient books did not treat separately of medicine, astrology, and religion, but of all these together.”

In the tomb of Osymandias, at Thebes, was deposited a library containing, according to Diodorus Siculus, 20,000 volumes; this is probably the first collection on record, and it contained amongst other works the forty-two books said to have been written by Thoth, the minister of Osiris, and the inventor of many of the arts and sciences. To enter into an account of the antiquarian researches regarding this personage would be out of place, but he probably was the same as the *Hermes Trismegistus* of the Greeks. The treatises in question were probably the compilation of centuries, (as it was usual to promulgate every addition to science under the same title), and were denominated “*embre*,” or “*scientia causalitatis*.” This primitive encyclo-

pædia, as it may well be called, contained the digest of knowledge from which the priesthood were instructed in theology, abstract and ritual, politics, jurisprudence, astronomy, cosmogony, geography, physical and mathematical, as far as referred to Egypt, education, poetry, and music ; and to conclude, the six last books treated of anatomy, the practice of medicine generally, the instruments of surgery, pharmacy, diseases of the eye, and those of women ; the different parts of this code were entrusted to different sections of the priesthood, the medical portion, being committed to the care of the inferior order called “*Pastophori*,”* who were the practical physicians superintending the administration of drugs, and the performance of operations. But what were deemed the higher branches of the art, the prophesyings, as they were called, and the magical rites which accompanied the remedial measures, were reserved to themselves by the higher order of priests. To discover the details of practice were now a vain inquiry ; according to Aristotle, no treatment was attempted until after the fourth day of the illness ; the physician then proceeded to prescribe according to the rules of his written code, from which, if he deviated, he was liable to suffer death in case the patient died.† This arrangement was perhaps a salutary one, in a semibarbarous age, when “an act of uniformity,” as it might be termed, in medicine, was necessary to preserve whatever light and knowledge already existed, and to prevent the frequently unprincipled experiments of barbarous quackery. But it must also have produced as a necessary consequence, that the science could not receive any practical improvements from a more extended experience, and must degenerate into a mere routine, unintellectual art ; and such appears to have been the fact. At the period of the reign of Sesostris primitive Egypt appears to have reached the summit of its military, social, and literary renown ; but the

* For a particular account of the divisions of the Hermetic volumes and their subjects, with the partition amongst the priesthood, see Clemens Alexandrinus, Strom. lib. vi.

† Diod. Sic. lib. i.

absurd notion of their having arrived at the *ne plus ultra* of civilization, procured the enforced obedience to their then written code, thus insuring, not their stationary position, for this may be as impossible a condition for nations as for individuals, but a gradual declension.

The jurisprudence of the record referred to was of a very advanced character, some of its provisions were touching questions, which are now denominated medico-legal, and may be mentioned here. Women who were pregnant at the time of conviction of capital crimes, were not executed until after their delivery. Sanatory laws were enforced, and an accurate register was kept of births and deaths, with the causes of the latter, by officers specially appointed for the purpose. The Egyptian physicians possessed a renown that extended to the surrounding nations, and Homer has recorded the medicinal virtues of the plants of Egypt and the skill of her practitioners, in the following lines :

Αἰγυπτίη· τῇ πλεῖστα φέρει ζείδωρος ἄρουρα
 Φάρμακα, πολλὰ μὲν ἐσθλὰ μεμιγμένα, πολλὰ δὲ λυγρά.
 Ἴητροός δὲ ἕκαστος ἐπιστάμενος περὶ πάντων
 Ἀνθρώπων· ἧ γὰρ Παιήονός εἰσι γενέθλης.

And at the time of the visit of Herodotus, about 450 years before our era, he describes Egypt as abounding with physicians ; and he states, that each devoted himself to the treatment of a distinct class of diseases, attending to the head, to the teeth, the eyes, abdomen, or what were denominated secret disorders, (*α φανεων νοσων*). Surgical operations were studied as a separate branch of the art. If we compare this statement with the division of the science in the Hermetic volumes, we cannot but remark the strict analogy between the division of labour in those distant times, and what obtains at the present day in the most civilized European countries. There was one peculiarity in the condition of the faculty of primitive Egypt which, by its members at least, would be deemed an improvement even in this forward age, which was, that each recognized physician

was allowed a public provision made for them by law, this did not prevent them from receiving fees for their attendance on the sick, except in two instances, when they attended travellers taken ill whilst on a journey, or any one connected with the military class or order.*

Some general idea of the Egyptian practice has been preserved by Diodorus Siculus, who derived his materials from Hecataeus, an officer of Alexander's army, who visited and minutely described the institutions of Egypt in the reign of Ptolemy Soter. They generally prescribed evacuations, which they effected either by emetics, cathartics, or by injections; fasting was frequently prescribed, as they deemed the greater number of diseases to be derived from the effects of repletion; habitual purging at regular intervals was also very common; but all those modes of treatment were accompanied in cases of urgent illness by magic rites, as I have before stated. Dreams were regarded in Egypt with religious reverence, and the prayers of the devout were rewarded by the gods with an indication of the remedies their maladies required; but this and probably magic ceremonies were resorted to as a last resource, when the skill of the physician appeared baffled. A similar superstitious feeling induced them to offer *ex votos* in the temples. These were of various kinds, some promised a certain sum for the maintenance of the sacred animals belonging to the deity, whose interposition they solicited, which in the case of children, was decided by weighing a certain portion of the hair of the head, either the whole or one-half or one-third, shaved expressly for this purpose, and as soon as the cure had been accomplished, they performed the vow by giving an equal weight of silver to the curators; these persons travelled about advertising by placard, the virtues and kindness of their own deities,† and, no doubt, the spontaneous termination in health of numerous affections, gave renown to deities represented by

* Diodor. Sic. lib. i.

† See Wilkinson's *Arts of the Ancient Egyptians*, vol. iii.

apes, birds, and reptiles at that time, as it has since done to universal elixirs, infinitesimal doses and zoomagnetic manipulations, the absurdity of which can only be surpassed by the simplicity and credulity of the believers in their virtues. Some of those *ex voto* offerings have been discovered by modern research. A hand and forearm of ivory, supposed to be of this origin, is in the collection of Mr. Salt ; a tablet also has been found with an ear, and certain rude figures of acoustic or surgical instruments engraved on it, which was probably an offering for the relief of some disease of that organ.

It has been stated, that one of the Hermetic books relating to medicine, contained a treatise on anatomy, and it has been asserted by Pliny,^r that their kings ordered dissection for the purpose of throwing light on disease, (for the study of medicine was not considered beneath the dignity of the sovereign himself. Galen alludes to a treatise on this science by one of the kings ; this might occur from the frequent elevation of one of the priesthood to the throne). Many other statements are made, which at first sight would induce the inquirer to suppose that practical anatomy was cultivated generally by the “*Pastophori* ;” but from all the evidence at present before us, I fear we are scarcely justified in positively concluding, that dissection, properly so called, was practised in Egypt during the Pharaonic period. Of the contents of the Hermetic books on anatomy we can know nothing, and the existence of their theological and astrological anatomy does not make it probable that the true knowledge of the subject had a real existence. The practice of embalming is too interesting a subject to be omitted whilst on this question, particularly as some antiquarians deem it in some degree a proof of the practice of anatomy ; now to me it seems to militate against the practice. The veneration in which they held the dead body, and their metaphysical speculations on the future destinies of man, led to the practice, and would naturally prevent the habitual custom of useful practical dissection ; indeed, such was their abhorrence of any one who injured a

dead body, that the individual who made the necessary incision by which the thoracic and abdominal viscera were extracted, was pursued by all present as the object of execration. The mode of embalming has been so frequently described that it is enough to state, that through an incision made in the left flank, the contents of the abdomen and thorax were extracted, and the contents of the cranium were removed by introducing hooked crotchets through the nostrils, and breaking down the cribriform lamella of the ethmoid bone, by which the brain and membranes were withdrawn without defacing the external features; this custom might prevent some gross ignorance as to the number, size, &c., of the viscera, but most assuredly it was not by such dissection that the splendid discoveries in anatomy were made in the Alexandrine school, under the Ptolemies.* A question has been raised, *whether the embalmers were physicians or not?* and a writer in the Encyclopædia Metropolitana asserts, that the argument founded by the learned Warburton on the passage in Genesis, where “*Joseph commanded his servants the physicians, to embalm his father, and the physicians embalmed Israel,*”† cannot be maintained, as it is founded on a wrong rendering of the original, the Septuagint translating the word we term “*physicians*” by *ενταφιάσταις*, “*entombers*” or “*undertakers*.” To decide the question by a reference to the original I am indebted to a learned friend for the following criticism :

“The word *הַרְפְּאִים* (*Ha-rō-phě-eem*), is from the root *רָפָא* (*Rā-phā*), *sanavit*, which derivation would of itself justify the interpretation ‘*physicians*.’ But we have the corroborating sanction of the other parts of the Hebrew Scriptures in which the word occurs, namely, JER. viii. v. 22, where we read that well-known sentence, “Is there no balm in Gilead? is there no

* For an accurate collection of all the ancient and the best modern accounts of embalming, see Pettigrew on Mummies.

† Genesis, c. l. v. 2.

physician there?" And in Job, xiii. 4, ' ye are all *physicians* of no value.' It is remarkable that the Septuagint translates the word in these passages from Jeremiah and Job, by *ιατρος*. We are surely then justified in concluding from the use of the word in the other parts of Scripture, and from the light thrown on the version by the original, that the LXX. meant by the word *ενταφιασταις*, a peculiar office of some of the *physicians* of Joseph's household."

As I have alluded to the Egyptian theological or astrological anatomy, I will give a few from amongst the divisions of the human frame, and the heavenly powers or other deities that they are held sacred to, and under whose immediate protection they were considered to be. These examples are taken from the exposition which has been made by Champollion, from the "Book of the Manifestations," found in connexion with their mummies. The head was consecrated to Phré, the sun; the eyes, to Hathor, or Venus; the left temple, to the living spirit of the sun; the nose and lips, to Anubis; the neck, to Isis; and arms, to Osiris; the genitals to Osiris and the goddess Kopt, &c. &c. The question arises, was this the "anatomy" of the Hermetic volumes, from which the Pastophori were instructed in that science? Another presumptive proof of the cultivation of true anatomical knowledge is, the performance of operations; but these have been performed to some extent in all ages, however ignorant; we read of a few operations in the notices of ancient Egypt; but so vague are the statements transmitted to us, that no light is thrown on the question at issue. Ophthalmia has been endemic in Egypt in all ages, and the greatest of her princes, Rameses the Second, or Sesostris, became blind, and, unable to endure the privation, he committed suicide. His son and successor, Pheron, was more fortunate, he was blind for eleven years, and his sight was restored by operation; but the exact nature of either the disease or operation cannot be known.

The period of the Persian dynasty in Egypt was manifestly one of decline; yet the knowledge of her priesthood, and the

fame of her former grandeur, continued to draw the greatest minds of other countries to seek in Egypt the highest knowledge of their separate studies which the world at that time afforded. It was in the reign of Nectanebo I., about 337 years before Christ, that Eudoxus, the astronomer, Chrysippus, the physician, and Plato, the philosopher, visited Egypt; and these were at the head of their several schools in Greece. Both the illustrious Cyrus and Darius sent to Thebes to demand the assistance of its renowned physicians.

But whatever doubts rest on the subject of practical anatomy in Egypt during the Pharaonic and Persian dynasties, they are dissipated when we turn to the brilliant revival of science under the auspices of the first Ptolemies. The schools which were immortalized by the precision with which the obliquity of the ecliptic was established, by the measurement of a degree on the earth's surface, and by the demonstration of the precession of the equinoxes, were not less renowned for the cultivation of anatomy, clinical medicine, botany, chemistry, and toxicology. And the names of Erasistratus, Herophilus, Serapion, and Dioscorides, are still looked on with the deepest veneration by the cultivators of these sciences in the present day. Connected with them we have the most brilliant discoveries in anatomy; for instance, the lacteals of the intestines, and the ventricles of the brain, particularly the fourth; and the sinuses of the dura mater, combine their streams in that venous reservoir, still called from its discoverer, Torcular Herophili. This philosopher was said by Tertullian to have dissected not less than 600 subjects. The name of Serapion has been placed at the head of the empiric sect; and from his disregard of some of the crude physiological hypotheses of his day, he has been accused of empiricism in its worst sense; but, I believe, falsely; the old Egyptian practice was cautious and expectant, he seems to have studied it, and to have trusted more to observation at the bed-side, than to preconceived doctrines. I would place him at the head of clinical medicine. He was one of those who rested the whole science on what was termed by Glaucias, the tripod of medicine, viz., *obser-*

vation, history, and analogy. He even violently opposed anatomy, for the purpose of gratifying the superstitious prejudices of the Egyptians, who deemed it sacrilegious to touch a dead body.

Dioscorides, although a Cilician by birth, pursued his studies in Alexandria, and became physician to Cleopatra. His name has been associated with botany, and he considerably enlarged the bounds of that science. The number of species described by him exceeds 600, more than double those known to Hippocrates; but he did not confine his researches to plants, he wrote on minerals and their uses in medicine; on poisons and their antidotes; and his prescriptions may be denominated the first pharmacopœia.

Before we come to more recent times, it is impossible to leave unnoticed the impulse given to science by the establishment of the Alexandrine museum and library. The abstract, the mixed, and the sciences of pure observation, seemed for the first time to be cultivated, systematically, on their proper foundations; and whilst imagination and fanciful invention were excluded from their august temples, these latter faculties were cherished in their proper positions: poetry and rhetoric were cultivated; the richest monuments of Grecian genius were copied, studied, and preserved; and to the same school we are indebted for one of the most valuable legacies of ancient literature, the Septuagint translation of the Old Testament. These are the peaceful achievements which shed the most undying as well as the brightest glory round the memory of the first Ptolemies, and which will cause them to be venerated as the benefactors of mankind, when the memory of the mere conqueror will be blotted out or retained as the subject of execration, for the wholesale extermination of his fellow-men.

The Alexandrine library was three times destroyed, first during the civil wars of Cæsar, when it was restored by Antony; next during the religious wars under Theophilus, Archbishop of Alexandria; and finally by Amrou, the enthusiastic general of Omar. I may incidentally mention, that this last

destruction, though bewailed by every modern historian, and the literati of all Europe, has been doubted by Gibbon : however he consoles himself for the loss to literature, if it were true, by the sage reflection, that by becoming fuel for the public baths, the theological controversial writings of the preceding centuries were, at length, destined to be of some service to mankind. But this is not the only instance in which the philosophic historian was sunk by Gibbon for the gratification of uttering the only argument against Christianity which he well knew was unanswerable—a sneer.

Amongst the varied labours of the museum it is rather a strange fact, that we do not find the elucidation of the hieroglyphic literature of Egypt. The revival under the Ptolemies was so completely Grecian, that little effort seems to have been made to preserve the knowledge of primitive Egypt, which must then have existed. The only memorial of such an object was the publication of the ancient dynasties, by Manetho ; but neither he, who was an Egyptian who knew Greek, nor Eratosthenes, who was a Grecian acquainted with Egyptian, made known a key to those elaborate records, which existed in such profusion in the sculptured monuments of past ages ; how far these records would unfold the exact state of the abstract and practical sciences remains to be discovered, by more extensive and complete investigations than have as yet been made. Whilst alluding to this subject, I cannot deny myself the gratification of referring to the labours of a practising physician, the late learned Dr. Young, and claiming for a member of our profession, what has been pronounced by competent authority, “ the greatest effort of scholarship and ingenuity which modern literature can boast,” the deciphering the inscription on the stone of Rosetta ; thus furnishing a key to all the treasures of the hieroglyphic and demotic literature of Egypt, which have been or may hereafter be discovered.

As so much light has been thrown on the arts, habits, and civilization of the ancient Egyptians from the publication of the

pictorial representations on their monuments, it might naturally be expected, that our inquiry into the practice of the healing art would be much facilitated by their examination ; but although their arms, armour, chariots, harness, and mode of warfare, to the minutest particular, have been vividly depicted ; although their domestic arts, their husbandry, their amusements, their toys, their ornaments, and the minutest tools of those handicraft trades have been embalmed, as it were, in those brilliant representations ; the practice of the healing art, their operations and their surgical instruments have not been so preserved. Two groups only, which bear upon this subject, have been discovered at Beni Hassan, both which seem to refer to an operation on the head or eye : these have been figured by Wilkinson in his interesting work on ancient Egypt.

It is well known in the history of the sciences, that the Arabians preserved much of the knowledge which was lost or corrupted in the declining eastern empire, and made important additions to some of them : the art of medicine was amongst those. It is not my purpose to allude to the Arabian writers, but it is natural to suppose, that Egypt, when conquered by the Saracens, became tinctured with the prevailing doctrines of the Arabian schools ; however, wars and civil commotions so harassed the country for several centuries, that medicine, *as a science*, became totally extinct. I say *as a science*, for the *art*, as practised even by those most ignorant of its principles, exhibited many traces of probably the rigid Hermetic code, the physiological dogmata of the Alexandrine or Greek period, and the lessons inculcated by the accurate Arabian writers.

The learned Prosper Alpinus, who visited Egypt in the sixteenth century, could not sufficiently admire the incongruous union of the most barbaric ignorance of the professors of the healing art, with the fragmentary traces of a deeper knowledge than Europe herself possessed, as exhibited in some of their therapeutic indications. The decadence of medical science he ascribes to the barbarism and tyranny of the Turkish conquerors,

particularly of the Mamelukes. The learned were scorned and persecuted, the schools were deserted, and when the former were driven out or died away, the latter ceased to exist for the purposes of philosophy and medicine; and Egypt became destitute of science, literature, and professors: but amidst the dearth, the ignorance, and the corruption of the art he could discover many things, to use his own emphatic language, “*Veram præclarissimorum medicorum antiquitatem redolentia*,” and which he deemed worthy of being known to the most learned of physicians.* This is a condition of society so curious and interesting, that a minute examination into its gradual development would form an instructive chapter in the history of human knowledge, and analogous conditions might probably be found for illustration, at the present day in the east: time, however, would not permit the inquiry. I shall merely give a few examples of practice, which must appear wonderful amongst a people whose physicians were said to belong to a grade “*infimum atque vilissimum*,” and this, not so much on account of the barbarity of the nation, as of their own profound ignorance.

Bloodletting, as one of the most important remedial agents, was largely resorted to, and was practised in putrid fevers, variola, phrenitis, angina, pleuritis, pneumonia, inflammation of all the abdominal viscera, in external inflammations, such as erysipelas, and ophthalmia, in the different forms of cynanche, external tumours, convulsions, epilepsy, and hæmorrhages; the catalogue might be extended, but it was not the universal adoption of this remedy that is most worthy of remark, but their various modes of performing the operation; these were varied according to the disease, its seat, and its severity, and were *venesection*, *arteriotomy*, *local scarifications*, and *cupping*. In venesection, they did not confine themselves to the veins of the arms, but, according to the seat of the disease, opened the frontal veins, those at the angles of the eye, the jugulars, those of the

* Prosper Alpinus de Medicina Egyptorum, lib. i. ch. 3.

arms, and the lower extremities ; in inflammation of the mouth and throat, they opened the ranine veins. But their boldest operation was the section of numerous arteries. In the present day, the branches of the temporal are alone opened ; but the Egyptian surgeons without hesitation bled from the temporal, the auricular, the occipital, and the termination of the radial, or, as Alpinus expresses it, that artery of the hand which is placed between the thumb and the index finger ; this is the more marvellous, as at the period we allude to, arteriotomy was not attempted in Europe, even by the Italian physicians.* Local scarification was much practised, particularly in the cases of infants, women, and eunuchs, who, loaded with fat, did not present a full development of the superficial veins : blood was extracted in this manner with much address, and in considerable quantity, from the lips, gums, nares, and the external passages of the ear : the lower limbs were freely scarified in certain diseases. The fourth mode of operation was by cupping ; for this purpose they used the horn of a small ox, or an instrument of a peculiar shape, made of glass : the vacuum was formed by suction through an orifice at the smaller extremity, the larger being fixed on the skin ; the scarifications were made with a single instrument, and the suction being again applied, the body of the instrument was filled with blood ; dry cupping was also practised.

The moxa was frequently used as a means of relieving deep-seated pains, in severe affections of the head, the spine, and larger joints, particularly the hip joint, and in paralysis of the muscles. They formed a pyramid of cotton wound round with a silken thread, the base was firmly fixed to the skin, and whilst the combustion was taking place, the surrounding parts were preserved from the effects of radiation ; the pyramid was made either solid or hollow to modify the eschar. I have been thus particular to show the minute coincidence of their practice with our, I may say recently introduced, mode of applying the same

* P. Alpinus, lib. ii. cap. 11 and 12.

remedy. The diseases, too, in which it was applied are precisely identical with those in which it is now deemed useful.

A frequent disease was calculus of the bladder, which they attempted to remove without incision ; this they did by distention of the urethra and neck of the bladder with graduated bougies, and the introduction of a canula, through which they effected the extraction of the stone, *broken into fragments if it were too large to be removed entire.** If it be too much to call this lithotrity, the consideration of the operation might have proved eminently suggestive. I would give the two modes detailed by Alpinus, but that I fear I have already indulged too far in those details, which, however interesting to the members of the College, may prove irksome to the unprofessional portion of my auditory.

As we have now arrived at a period in which we can collect accurate information on the physical peculiarities of the soil and climate of Egypt, and the prevailing diseases, with the treatment of each, it would be a matter of some interest to enter on those subjects with some minuteness ; but disquisitions would naturally arise of too technical a nature to be of general interest ; they would also protract this sketch beyond its proper limit ; but not to pass by altogether the subject, I shall make a few observations. Herodotus described the ancient Egyptians as being remarkably healthy : far different is the record of all later writers ; and to detail the diseases described as endemic in Egypt, would be to enumerate all those known elsewhere, with some of a peculiar malignancy all their own. Alpinus, before referred to, has a fearful catalogue ; modern research has generally confirmed his relations, and added others of which he made no mention. The same general causes are assigned, viz., the long continuance of excessive heat, the thermometer varying from 90° to 112° F., pestilential malaria, and the destructive wind called zaniel, or the simoom. Traversing the sandy deserts of

* Alpinus, lib. iii. cap. 13.

Africa, unmodified by rivers, lakes, or forests, the southern winds arrive in Egypt laden with all the noxious exhalations of the desert ; at their approach the serene sky becomes black and heavy, the sun loses its splendour, and becomes of a dim violet hue ; a light warm breeze is felt, gradually increasing in heat, till it almost equals that of an oven. Though no vapour darkens the air, it becomes so gray and thick from the floating clouds of impalpable sand, that it is necessary to use candles at mid-day ; every green leaf immediately withers ; the animal creation equally suffer ; the breathing becomes quick and difficult, the pores of the skin are closed, and a feverish habit is induced : the increasing heat pervades every substance, and water, no longer cool, is rendered incapable of mitigating the intolerable thirst by which the whole body is oppressed.

Such is the fearful account of one of the meteorological phenomena of Egypt by modern travellers ; the aspect of the country is almost as rapidly changed as the condition of its atmosphere. Volney observes, that it assumed in succession the appearance of an ocean of fresh water, a miry morass, of a green level plain, and a parched desert of dust and sand. Along with these causes, an insufficient supply of food, its frequently noxious quality, and a degree of filthiness of habit beyond all description, place the mass of the population under physical conditions perhaps more disposing to disease than those surrounding any other people. Under these circumstances we cease to wonder at the relation of the numerous severe affections occurring in Egypt. Ophthalmia, in many and obstinate forms, is all but universal ; skin diseases of peculiar malignancy and inveteracy abound ; variola has been very fatal in Egypt ; putrid fevers and intermittents are frequent ; phrenitis of great violence also occurs, so as even to destroy life in a few hours ; mania, dysentery, and rheumatism are prevalent, along with several surgical disorders, such as calculus, hydrocele, herniæ, &c. ; and to crown the whole, plague in its worst and most destructive forms. Although the older writers mention severe inflammatory affec-

tions of the chest as common in the country, Clot Bey asserts, that Egypt enjoys an immunity from those diseases, as also from consumption ; and he even proposes a residence there for patients suspected of phthisis.

To meet this mass of disease the native physicians possess neither the elementary sciences of their art, nor even the practical skill of former ages ; and the best account of Egyptian practice contains merely a record of gross and frequently disgusting superstitions. I can but refer to Mr. Lane's interesting volumes on modern Egypt. I do not of course allude to the numerous European practitioners who abound in Egypt. When the Venetians more than 300 years ago established a consulate there, it was accompanied by an Italian physician ; and since that period, Italian, French, and English physicians have multiplied, so as to become the practitioners who attend all those of station and wealth.

Fortunately this is not the last aspect in which we have to view our subject ; and I cannot better close these observations, than by giving some account of the establishment of a school of medicine at Abouzabel, under the auspices of M. Clot, a French surgeon, who has been advanced to the rank of Bey of Egypt, and colonel in the army ; and who possesses, or, at least, did possess unbounded influence over the celebrated Mohammed Ali.

The barbarism of Egypt has been often tinctured and almost redeemed by some refinement emanating from the influence of previous civilization, or from the high personal qualifications of the reigning despot. On the other hand the revivals which have occurred have been characterized and stained by some features of barbarism. This was the case under the Ptolemies of old, and this has been the case in the present "*regeneration*" of Egypt, as the French are pleased to term the modern innovations under its present ruler.

It was to the faithful devotion of his Albanian soldiers Mohammed owed his rapid rise to the supreme power ; and almost every introduction of European science, and every new fiscal ar-

rangement, have been made to accomplish one ultimate object, the support and well-being of an army beyond the natural strength of Egypt, viewed in reference either to her population or her wealth; but whatever may have been the motive which led to them, the effect of many of his innovations must finally be of incalculable advantage to the country. And none more so than the revival of pure medical science in the land where it first arose.

In his attempts to form an army regulated and disciplined according to European tactics, Mohammed discovered that he would be defeated unless he had the benefit of European *medical* as well as *military* science to organize the hygiene of the masses which were to compose his battalions. Of 20,000 inhabitants of Cordofan and Darfour, only 2000 remained alive after two years' drilling. Small-pox at first committed fearful ravages, and after that plague was stayed by vaccination, they perished by thousands without any adequate disease being assignable.

In 1825, the Egyptian agent at Marseilles proposed to M. Clot, a surgeon practising in that city, to go into Egypt to organize the service of health. He did so, and the army of course was his first care. The ignorance of the native practitioners presented the greatest barrier to the contemplated changes. A school of medicine with its hospitals, professors, and apparatus was to be created; and this, under difficulties, which to any other than a man of bold and daring genius, would have been insurmountable. Near the ancient Heliopolis, at Abouzabal, was stationed a military force of 60,000 men; the military hospitals there, he deemed the most appropriate foundation for the course of education of the future military surgeons and physicians of renovated Egypt. As a strong instance of the good sense of M. Clot, I may mention the fact, that he did not get himself appointed a member of the supreme council of health, which was his first care to have established; but I shall allow him to state the position in which he found himself in his own words; in his

address before the *Academie de Medicine* at Paris, about seven years subsequent to his first arrival in Egypt, he says :

“ I summoned to the proposed seminary the best informed of the rising generation, and 100 young Arabs were the first pupils ; new difficulties now presented themselves ; we were mutually ignorant of each other’s language ; how then, I said, were the pupils to be instructed ? I fortunately succeeded in finding in Paris three persons who understood French, Italian, and Arabic ; but these persons were ignorant of medical knowledge. I told them they should become physicians, but that they should first be pupils. I accordingly set them at work on the translating a treatise on anatomy, lessons from which were dictated to the pupils, who were afterwards examined by means of the interpreters ; but plates and wax models having failed to communicate the necessary anatomical knowledge, the dissection of the actual subject became essential ; but here almost insuperable obstacles were before us, independently of the idea of profanation of the body. The Egyptians have a theological doctrine that the dead feel the tortures to which they may be subjected ; the Pacha and the Minister of War refused to undertake the responsibility of sanctioning the practice ; at length, however, the chief of the Ulemas, a learned and enlightened man, was induced to *connive* at it ; two pupils were induced to begin on detached portions of the body, they were soon cured of their prejudices, and convinced of the indispensability of dissection ; in turn they convinced their parents and relatives, who convinced the rest of the people ; at length, from mere toleration, we were afforded actual encouragement, and finally, *Ibrahim Pacha and his Ministers of State assisted at a lecture on practical anatomy.*” Who cannot see in this brief extract the social advancement of years, perhaps I might say of centuries, crowded into a few months, through the wisdom and intrepidity, and indomitable energy of one man of genius ? The value of the pupils so educated soon was tested ; in a few years the murderous cholera burst over Egypt ; of the 260,000 inhabitants of

Cairo, 60,000 perished in less than a month; the foreign physicians fled; 150 of the pupils educated at Abouzabal were sent forth, confidence was restored by the success attending their treatment; thirty of them fell victims to their zeal; of the remainder, 100 were soon called to join the Syrian expedition of Mohammed Ali's troops, the success of which gave him his highest military renown. How much of the efficiency of those troops depended on the Arab surgeons educated by Clot Bey? but these were the successes which made the interference of European diplomacy, and finally, of British valour, necessary to preserve the integrity of the Ottoman empire, the ultimate results of which interference are still pending.

To supply the school with native professors, M. Clot deemed the best means of perpetuating its existence; and to accomplish this, a certain number of the most distinguished pupils were sent to Paris to study in the western schools, and to bring back to the East the most finished education and skill which France had it in her power to bestow. This object has been most happily accomplished, 500 physicians have been educated already; a complete school of medicine, anatomy, and pharmacy has been organized; and what was much more difficult of accomplishment, a school of midwifery and a *maternité* or lying-in hospital, have been established; the farther details on this interesting subject I would subjoin, but that I am warned by the time to conclude. It may not be uninteresting to state, that one of the difficulties to be overcome was an invasion of homœopathy; but to extinguish the pretence at once, Clot Bey *gave it a fair trial before competent judges*; I need scarcely add the result, that homœopathy was forced to abandon Egypt. Clot Bey is a rigid disciple of Broussais, indeed he deems the plague itself to be merely a severe form of gastro-enteritis.

In laying before the College these remarks on medical science in Egypt, and treating so large a subject so briefly, I necessarily incurred the risk of omitting many points of historical or practical interest, or of giving an undue prominence to

questions of minor importance : both of these errors I fear I may have fallen into, in my endeavour to make a selection of topics for consideration from so vast a field ; for these I have to entreat indulgence : and if I have alluded to some subjects less associated with medical than general literature, I can only offer in extenuation, the plea of the accomplished Roman advocate before a severe judicial tribunal, that, “ *Omnes artes quæ ad humanitatem pertinent, habent quoddam commune vinculum, et quasi cognatione quâdam inter se continentur.*”

ART. V.—*On Partial Rupture of Nerves*. By JOHN HAMILTON, M.R.I.A.

THE following case is by no means of unfrequent occurrence :

CASE I.—A gentleman, aged about 36, of nervous temperament, while in the effort of stooping to catch a lady who was falling, felt a sudden snap as if something had given way in the sacral region, accompanied with the most violent pain, and sudden weakness of the lower extremities, so that with great difficulty he got up stairs to bed. The pain shot round the ilia to the abdomen, and down the legs, more marked on the right side than on the left. When I saw him a few hours after, he was lying in a contracted position in the bed, being unable to straighten the body without great aggravation of the pain. After some days' rest in bed, and active treatment, he got well.

On thinking over this case, I felt much difficulty in satisfying my mind as to its real nature. What had given way to cause such instant and severe pain, and such weakness of the lower limbs ? The next case of a severer form points more clearly to an injury of the nervous system.

CASE II.—Mrs. R ———, a dairywoman, æt. 30, six years ago, when making a violent effort to pull down the back of a cart, the body extended to the utmost, felt something suddenly snap across in her back at the lowest part of the sacrum, a little to the left, attended with the most intense pain, and two

hours after, a total inability of standing upright from want of power in the limbs, and also from the pain becoming aggravated by the erect position ; there was a feeling of pins and needles in the part where she had felt the rupture.

The severity of the symptoms gradually diminished, but she was for the next two years never free from pain at the injured spot with weakness of the back ; she did not, however, discontinue her usual laborious pursuits. At the end of that time the symptoms suddenly became aggravated, the left lower extremity being seized with a numbness, coldness, and want of power, a sensation as if the parts were asleep, and some degree of dragging of the leg in walking. She became very nervous, the least noise made her start, and caused a dart of pain from the sacrum up the spine to between the shoulders. By the valuable advice of Mr. Wilmot, she got much better, but still for the four following years suffered more or less from the same symptoms. Six years from the occurrence of the injury I first saw her, a fall on the seat during the frost having induced a recurrence of her sufferings with nearly their original violence. In this case the injury from the strain was most likely in some of the branches of the sacral plexus which go to form the left sciatic nerve.

I have met with many instances of nearly similar effects from different kinds of violent efforts. In November last, Captain G——, 64th Regt., came to me complaining of pain in the left loin, and down the course of the sciatic nerve, with lameness and some contraction of the left lower extremity. Ten days before, while making a violent effort at rackets, the body stretched over as much as possible to the right side, he felt something suddenly crack in the left loin with most violent pain, this was immediately followed by the pain down the nerve and the lameness.

Here probably the superior lumbar branch of the sacral plexus was injured by the sudden violent stretch.

In such cases as these, however, it would be difficult to demonstrate the pathological evidence of a nerve having been me-

chanically hurt; opportunities of examining nerves apparently so injured scarcely ever occurring. But there are many lesions, the anatomical seat of which is so accurately defined during life, that their real nature is scarcely less apparent than if the parts themselves were exposed to the eye. Of this kind I regard the three cases which follow; in them there can be no doubt as to the nerve which is really injured.

CASE IV.—Essy M'Mahon, æt. 33, residing at No. 3, Shoe-lane, off Townsend-street, came to me April 3rd, 1840. Three weeks before, while wringing a heavy quilt with the hand in the utmost possible state of extension, bent back on the wrist, she felt something crack immediately above the wrist, and instantly experienced a numbness in the top of the fore-finger, and inside of the middle finger, and a sensation as if she had been stung by nettles; no pain was felt till bed-time, a pain then began from the tips of the fingers up the axilla, on the inside of the arm in the site of the nerves, so severe that she could not sleep; she had a spasmodic start in the arm. She went on in the same miserable way, with pain and sleeplessness, for eight nights. She lost all power in the wrist and hand, and could not bend the hand or fingers. *The hand became as cold as ice*, except when friction was used, or on exposure to the fire. Three days after the accident she went to a dispensary, where, among other things, she was told to keep the hand quiet, which good advice she disregarded, and continued her employment of washing; but after a fortnight's suffering she could hold out no longer, being also utterly unable to do any work. A week after this I first saw her.

The hand was powerless and hanging loose on the wrist, as in paralysis from lead: numbness in the palm and fingers, but not on the back of the hand; the fingers felt to her dead and cold. With the exception of a small painful ganglion at the radial side of the wrist, partly over the artery, a careful examination showed no injury to the bones or ligaments, or other structures of the part. But there was exquisite tenderness felt

in the situation of the median nerve, about three fingers' breadth above the wrist, from which spot down the course of the nerve, towards the fingers, including about its lower fifth, the most violent aching pain was complained of. The hand was *blue and cold*.

Regarding this as a partial rupture of the median nerve at the painful tender spot, and that the only chance of reunion was absolute rest, I placed the hand, enveloped in thick French cotton, on a splint, and secured it with a bandage. Great ease followed this treatment, and in a fortnight she was quite well.

CASE V.—March 13, 1840. Harrington, a delicate man, ætat. 46, servant to Mr. Hutton, of Summer-hill, three weeks before, while placing a heavy dish on the table, his foot slipped and the whole weight came suddenly and unexpectedly on the right hand, the carpal end of the palm being put violently on the stretch; he felt a sudden pain and weakness, and as if something had given way. He thought nothing of it for the first two days, but then the palm of the hand became very painful, and the fingers quite powerless. The pain and want of power became so much worse that with difficulty he contrived to do his business. There was obvious swelling at the carpal end of the palm, with tenderness and heat of skin; he describes the pain exactly in the situation of the median nerve. The two last joints of the middle and ring fingers are nearly quite insensible and numb, but they do not feel cold; he has occasionally the same want of sensibility in the forefinger and in the last joint of the thumb. These fingers were nearly powerless, if he attempted to hold a thing it would fall out of his hand.

From the nature of the accident, the seat of the pain, the paralysis of motion, and sensation in the parts supplied by branches of the median nerve, I regarded this case also to be one of partial rupture of this nerve, followed by inflammation at the seat of the injury.

I ordered two applications of leeches to the palm, and warm fomentations, which greatly diminished the local inflammation.

Then the hand was placed on a splint, and Goulard lotion applied. Five days after he was nearly well, the only symptoms being a little weakness of the hand.

CASE VI.—Sir G. C., in shutting down a window, which required much force, felt a sudden pain, with a feeling as if something had given way in the palm of the right hand, in the centre of the web which unites the ring and little finger. It was accompanied by loss of power in the hand. He consulted me two months after. There was a complete loss of power in the little, ring, and middle fingers, which were permanently flexed and contracted; he could not straighten them, and if it was attempted by another person, he suffered severe pain, shooting like a slight electric shock from where he first felt pain and sense of rupture in the palm to the back of the hand, and up along the back of the forearm to behind the elbow. This pain sometimes arose spontaneously. On examining the site of the injury, it appeared slightly swollen, hotter than the surrounding integuments, and pressure on it gave rise to a similar pain to that described above, but darting along the outside of the ring finger to its extremity. The same electric-like pain can be made to dart to the ends of the little and ring fingers, by pressure at the back of the wrist in the situation of the dorsal branch of the ulnar nerve. He had been using the hand more or less from the time of the accident; the thumb and forefinger being unaffected. I ordered absolute rest, four leeches to the painful spot, and afterwards a poultice of bread and Goulard lotion. In four days a great amendment had taken place; *he could quite straighten the fingers.* He still experienced the pain, but less violently. I now put the hand on a splint, this, however, he, being somewhat impatient, would not bear. He kept the hand quiet in a sling for a time with great benefit, but he began to use it, though very slightly, sooner than I wished, and the recovery was consequently slower. At length, sensible himself of the benefit he derived from absolute rest, he wore a small splint which confined the three fingers, and six weeks after

I first saw him, he was nearly well, but still felt pain on pressure at the original seat of injury, or the back of wrist, near to branch of ulna. This slowly subsided; the only remains of the hurt now are a dead insensible feel of the web between the ring and little finger, some weakness of these fingers, and cramp after using the hand much, as in riding. The partial rupture here evidently took place in the branch of the ulna nerve going to the ring and little finger, the irritation from the ruptured spot extending up and down the branches of the nerve, and paralyzing the parts below the injury. For two months, during which the hand was used, the symptoms became worse and worse; by leeching and poulticing the part to reduce the excess of inflammation, and by rest, a cure was accomplished which would have probably been as rapid and as complete as in the preceding cases, had the patient applied early and been more amenable to the necessary restraint.

In these cases the cause of the injury was pretty nearly similar, the part having been put violently on the stretch; a sense of something having broken was followed by pain, referred to the anatomical position of a nerve, but besides this, parts supplied by branches of the nerve are affected with paralysis of sense and motion, leaving diagnosis of injury of the trunk of the nerve extremely probable. Another symptom of uncommon interest in Essy M'Mahon's case is the alteration in the temperature of the hand. The extreme coldness observed in this case I have seen in many others where a nerve had been injured, and is mentioned by Sir B. Brodie as among the symptoms of local hysterical affections of the joints.* It is not merely the sensation of cold experienced by the patient himself, but an absolute diminution of temperature, attended with a mottled bluish appearance, and sometimes an œdematous tumefaction of the part. The coldness is usually not persistent, but alternates with intense heat, which last sensation is infinitely more distressing than

* Lectures illustrative of certain local nervous Affections, p. 41.

that of the cold. The hot alternation appears occasionally to obey certain laws, coming on at two periods in the day as hectic does, viz., about two or three o'clock in the day, and again at bed time. The part is flushed, and sometimes a perspiration breaks out in it, and it literally smokes, the rest of the body being natural.

This alternation of cold and heat was observed in the next case, where the trunk of a nerve was injured by fire.

CASE VII.—Michael Duffy, ætat. 64, a servant out of place, was admitted three weeks ago into the Meath Hospital, under the care of Sir P. Crampton, having early the previous day been found in a state of insensibility in a lime kiln. He remained insensible the whole day; he was scorched on the legs generally; but there was a burned spot to the fourth degree (Dupuytreyn) over the head of the right fibula, in the situation of the peronæal nerve, the skin here having been completely charred quite through the cutis for about the size of a shilling; there were other burned spots on the ball of the big toe, and on the smaller toes of the same side. For the first week he could walk by bearing against the walls and by the aid of a stick, but when the burned piece over the head of the fibula sloughed out, paralysis of the leg came on, and has remained ever since. The right leg from the heads of the fibula and tibia, down to the ends of the toes, is numb as if asleep, and is insensible; this state is observable on the front and outside of the leg, down the outer ankle, and to the front of the foot to the toes, but not on the calf or inside of the leg or sole of the foot, in short the parts supplied by the peronæal nerve and its branches, the musculo-cutaneous, and anterior tibial alone are affected. The numbness, with some degree of pain, extends upwards in the outside of the lower third of the thigh in the course of the sciatic nerve. The affected parts feel usually much colder than the others, and are so to a slight degree at present, but at night they get fiery hot from the ankle downwards. There is some swelling of the leg, and the foot hangs

loose from the ankle and he is unable to flex it, resembling the state observed in painter's cholic. Where the part killed by the burn has separated over the head of the fibula and extending a little behind it, is a small but deep ulcer, surrounded by a purple shining blush ; he says it was at first more than an inch deep, at present it is about half an inch ; in twelve days he left the hospital in the same state.

A little more than six months after, I met this man in the street a beggar on crutches. He had been obliged to use them ever since from the lameness arising from the paralysis, but he had slowly and gradually got so much better that he was going to lay the crutches by and use a stick. He could walk across a room without any support, and in doing so put the foot flat to the ground being unable to point the toe. There was neither power nor feeling in the great toe, (which otherwise looked healthy), probably from the burn at the ball of that toe having injured the nerve supplying its tibial side. He had regained in a great measure the sensibility in the leg and foot. There were slight swelling, pain, and tenderness at the instep and at the outer side of the lower third of the leg, with redness. Eleven months after the accident he was quite recovered, a fact of uncommon interest, as it leads to the supposition that the portion of nerve, which there is rational ground to believe to have been destroyed, was regenerated.

I was requested by a gentleman whom I was attending to visit a friend of his, the subject of the next observation, more as a matter of curiosity than with a view to any professional assistance, as she had had excellent advice unavailingly, and despaired of benefit from medicine.

CASE VIII.—June 20, 1838, Mrs. ———, ætat. 28, a delicate looking person, is so lame of the right foot that she is obliged to use crutches, and even with them can only walk a very short distance. The lameness is caused by weakness and pain in the ankle, and a prickling sensation when she puts the foot to the ground. The leg, ankle, and foot are reduced in size,

of a livid colour mottled with bright red, *quite cold*, and tender to the touch. The discoloration occupies nearly the lower half of the leg. Three years and a half before, in descending the stairs she missed a step, and violently turned the foot. She suffered uncommon pain after the accident, particularly at the inside of the sole of the foot, in the situation of the plantar nerve.

It continued in much the same state for three months, when she was greatly distressed at the death of a near relation, and suddenly found she had lost the use of the ankle, being unable to bear on the foot from weakness and pain; this was attended with redness and swelling. The pain became aggravated to the utmost degree, and the tenderness so extreme that she could scarcely bear any one near her. Cold in the day, at night it became intensely hot; and she found much relief from dipping the foot in cold water, a basin of which she kept always at the bed-side. She never covered the leg with the bed-clothes. The local affection was accompanied by a high degree of general nervous irritability and loss of flesh. She told me that her skilful medical attendants had tried various means, salivation, leeches, blisters, ice, &c., but with no good effect, and had left the cure to time, which is gradually bringing about a change for the better, the swelling having gone, as also the excessive tenderness and pain, and she can walk about with her crutches, which for a long time she could not do.

October 15, 1840. I saw this lady to-day, near six years since the accident, and more than two since I saw her before. A very material improvement has taken place; the foot is still a little tender; firm pressure on the inside of the sole over the plantar nerve causing a painful sense of pins and needles. The appearance of the leg, ankle, and foot is more natural, less shrunk, the colour also less intense, less livid, and less mottled. Still a little colder than the other foot, and still subject to occasional hot fits, but not so violent or frequent as formerly. She sleeps well at night, and has no pain, her general appearance is healthy, and though she uses the crutches, she has to depend

on them less than formerly, and has mere confidence in herself.

In a former paper* I have mentioned that the red œdematous swelling observed after a nerve is wounded, when accompanied by heat, greatly resembles that where matter is confined under a fascia ; and I adduced the case of a girl wounded in one of the palmar nerves by the puncture of a knife, (a wound likely to cause effusion of matter beneath the fascia), where the point was only decided by the alternations which took place, the swelling, heat, and redness at times totally disappearing. During the cold state of a part after the lesion of a nerve, the redness is not the same as during the hot stage, it is quite peculiar, and unlike the colour in any disease I have seen, being livid, mottled with patches of red-lead colour, resembling the back of the hand after long exposure on a cold frosty day.

What is not a little remarkable in this lady's case is, that after the diseased action had existed for six years, and, though declining, still existed, a careful examination showed the structure of the joint to be in nowise impaired. What other disease is there, simple inflammatory, rheumatic, or where cartilages or bones had been engaged, which would have left the joint thus perfect ? I have no hesitation in classing this case with those hysterical affections of the joint so well described by Sir B. Brodie.

Not wishing to trespass too far on the reader's indulgence, I shall merely mention briefly another case.

CASE IX.—Captain K——, 45th Regt., in running hastily down stairs, was thrown on his face by the heel of his right boot catching in the edge of one of the stairs. In falling, the foot was extended to the utmost, and he felt violent pain, and as if something had torn in front of the ankle. This was followed by severe pain at the spot, swelling of a livid colour and paralysis of the foot, which was tender on pressure, *occasional extreme*

* Dublin Medical Journal, vol. xiii.

coldness of the whole foot, especially at night, and at other times great heat. With intervals of amendment he suffered from these symptoms for several years, having been twice nearly well, but relapsed, first, in consequence of a piece of wood falling on the part originally hurt, and secondly, four years after the original accident, when at sea a sudden roll of the ship caused him to feel as if a tear had taken place across the front of the foot in the original place. Besides the symptoms usually observed in those cases, he had a very peculiar one, viz., a feeling of division between the toes, which he describes as very disagreeable ; and once when he was very bad, the same sensation was observed between the fingers of the right hand.

He is at present capable of bearing any fatigue, but still is occasionally annoyed with a nervous feeling at the injured spot ; and though it is now ten years since the accident, he cannot bear this spot to be touched ; it is just where the anterior tibial nerve passes over the ankle.

I trust sufficient testimony has been adduced to warrant the reader to agree with me in attributing the symptoms in these cases to a partial rupture of a nerve, I say partial, because the effects on the nervous functions of the parts were not those of complete division by laceration.* Where, as in the case of the burn, the mechanical injury to the nerve was obvious to the senses, the symptoms were the same, though severer, as where a sudden rupture or tear was felt in the situation of a nerve.† The most important of these symptoms may be classed under the following heads.

1. A sense of something having given way, with unusually severe pain in the situation of the nerve. This pain returning

* See an interesting case in Descot sur les Affections Locales des Nerfs, p. 49.

† Descot, whose work on the Local Affections of Nerves is well worthy of perusal, says, p. 47, “ Dans les entorses violentes et dans quelques luxations, les nerfs peuvent être violemment distendus et tirillés.” He does not seem aware of the precise symptoms following such accidents, but thinks that many cases related by authors as of contusion, might more properly perhaps be referred to this head.

after a longer or shorter interval, and extending along the branches of the injured nerve, and sometimes attended with morbid sensibility.

2. Paralysis of motion, and sometimes of sensation; and where the injured nerve supplied the extensors; permanent spasmodic contraction of the flexors.

3. Disturbance of the regulating power over the animal heat of the part,* hence excessive coldness, with alternations of intense heat; a certain regularity in the periods of these alternations having been occasionally observed.

4. Swelling of a dull-red during the warm or hot stage, and of a livid colour, mottled with red-lead coloured patches during the cold stage.

5. That the continuance of these distressing symptoms is often extremely prolonged.

There are strong grounds to believe, that these effects, from the local injury of the nerve, often depend on some constitutional peculiarity. Strains and accidents such as gave rise to the symptoms in the cases I have brought forward, are of every day occurrence, and yet similar results are rarely observed to ensue. In Case VIII. the symptoms of the injury to the nerve lay nearly dormant till a sudden shock to the nervous system called them into existence. This case, I have already said, I regarded as hysterical; but I cannot agree with Sir B. Brodie in setting down all such cases as IV., V., VI. as hysterical, on the contrary, I disbelieve them to be so; the paralysis of sense, motion, &c., are not only what we should expect to follow an injury to the trunk of a nerve supplying a part, but what we actually do find to follow a sensible injury of the nerve, as in the case of Duffy, when the peroneal nerve was burned, his symptoms being precisely the same as those of Essy M'Mahon, who felt a sense

* See a case in Swan, p. 37, where coldness was observed in the parts supplied by a nerve which had been cut by an axe. Also Sir B. Brodie's paper, *Philosophical Transactions*, 1811, proving that animal heat depends on nervous action.

of something having broken in the situation of the median nerve on a violent strain. A man, ætat. 38, got a kick from a cow over the upper and right side of the sacrum, this was followed by pain at the tuber ischii, and down the course of the sciatic nerve to the foot; the pain came on in paroxysms, what he called cramps; he could not stretch the leg, or move the thigh or leg without pain, the foot sometimes felt numb, dead, and senseless. The inflammation of the sacral plexus from the violent kick, produced pretty much the same symptoms here as the partial rupture which, I believe, Captain G.'s violent effort at rackets to have caused in the same plexus. I see no reason therefore to believe, that the affection in this gentleman, who was otherwise strong and healthy, was hysterical. In vol. xiii. of this Journal, I have related the case of a butcher, a stout, strong young man, who appeared to have partially ruptured the median nerve during a violent effort in slaughtering an ox. The symptoms were, pain in the situation of the nerve, some degree of paralysis of the hand, and the most distressingly painful hot fits at night, symptoms which he suffered from for several years, but which I cannot believe, in such a subject, to have anything hysterical in their nature. I am extremely happy to be able to add a case, for which I am indebted to the kindness of Mr. Cusack, that to me appears to go far in settling this question. In it the partial wound of the sciatic nerve was visible. Mr. Healy was good enough to furnish me with the particulars.

John R. C——, Esq., ætat. 22, of remarkably stout and healthy appearance, on Monday, 19th October, 1840, while out snipe shooting, accidentally received a gunshot wound in the posterior part of the thigh, an inch below the fold of the nates, which proceeded forwards and slightly downwards, partially dividing in its course the great sciatic nerve; the wound which was produced was about four inches in diameter, and in depth, to the bone, (he being only three yards distant from the muzzle of the gun). Immediately on receipt of the accident he fell forwards, at the moment remarking that he was gradually losing

the sensation of the limb, and in about five or six minutes it was totally paralysed ; there was very slight hæmorrhage, no large trunk being wounded, not even so much as to produce syncope ; as soon as assistance could be procured he was conveyed to a neighbouring house, where Doctor Elliot visited him. In the evening he was carried to his own house, which was distant about a mile ; he passed the night remarkably well, feeling no pain or uneasiness in the limb.

On the Wednesday following, in consequence of the tumefaction and tension, the entire limb was encircled in a poultice, which gave him great ease. On Thursday, Doctors Elliott, Cusack, and Hayden, met in consultation, and ordered the lower half of the limb to be encircled in French wadding and oiled silk, renewing the poultice on the thigh morning and evening, his bowels to be kept regular, and no cause for uneasiness allowed. The wound suppurated kindly, and every thing went on in the most favourable manner. The temperature on the anterior part of the limb was a little above natural, but on the posterior part was considerably deficient. The powers of sensation and motion were altogether absent. For three weeks the wound went on granulating kindly, portions of cloth coming away with the discharge, during which time there was extracted thirty grains of shot, three of which were imbedded in the substance of the sciatic nerve, together with portions of cloth and gun-wadding. On the latter part of the third week he complained of pain in the leg and foot as if pins and needles were pricking him ; the slightest motion or movement of any kind would increase the pain to an enormous degree, so much so that no person could come into or stir in the room. The noise which seemed to give him the greatest uneasiness was that of "gritting." A horse or car coming up the avenue would excite spasms of the entire frame, (resembling those of tetanus), which lasted for five or six minutes ; even pointing to the leg and foot *uncovered* would excite a spasm during this period. Medicines, viz., bark, quinine, antispasmodics of every kind

were ordered, but he positively refused taking any of them ; the only medicine he would take was opium at bed-time, this he would call for, await the hour anxiously till he got it, when he would immediately procure ease and sleep ; the opium had no effect on his bowels, they being always very regular. At this time he suffered much from irritable bladder, being obliged to pass water every quarter of an hour. Motion was altogether absent in the leg and foot. Fourth week ; had not so frequent spasms, nor was so sensitive ; drove out in his carriage daily. The wound was filled up with granulations, leaving one spot about the size of a pea filled with one large fungous granulation, which discharged thin gleety matter. It being suggested to dilate the wound with prepared sponge, he did so, but it not answering, he took no further notice, dressing it as usual with dry lint every day. Fifth week ; is gradually improving, being able now to use slight motion (flexion and extension) of the foot on the leg : cannot bear his hands uncovered, (from morbid sensibility in them), and is obliged to wear gloves constantly. Wound just the same ; sensation so powerful that he could feel even a hair touching his leg. During all this time his appetite was by no means impaired. Two months from the receipt of the accident having driven more rapidly than usual on a rugged road, he observed on the lint which he had dressed the wound with the preceding day, a large piece of ragged cloth which was perfectly rotten ; the next day, on looking at the wound, the fungous granulation has disappeared, and perfect cicatrization was accomplished. He continued from this time gaining more strength and motion in the limb. It is now ten months* from the receipt of the accident ; he can walk though only a short distance, and that with the aid of a stick. Has perfect sensation in the leg and foot ; but is still obliged still to wear the gloves, and keep them *constantly* moist with cold water, which he thinks dulls the acute sensitiveness.

* Duffy took eleven months to recover perfectly from the injury of the peroneal nerve.

From the partial lacerated wound of the sciatic nerve here ensue paralysis of sense and motion, pain, altered temperature of the parts supplied by the nerve, spasms; and Mr. Cusack informed me, that at one time the foot and toes were so purple that he dreaded mortification. But, moreover, the irritation from the wounded nerve extends to the spinal marrow and brain, hence the general spasms resembling tetanus, irritability of the bladder, the morbid sensibility in the hands, as also such a sense of cold in them and the legs, Dr. Elliott told me, as induced him to wear three pair of gloves and two pair of stockings. Dr. E. also mentioned, that he was extremely irritable, and at times very odd; noise of any kind being very distressing, except music, which soothed him. At one time he required every person that came to him to wear gloves, and the family to wear them at dinner. His senses became morbidly acute, at one time vision, at another hearing, at another smell.

Can we attribute these severe local and general nervous derangements to an hysterical predisposition? I think not. Have we, therefore, more reason to assign hysteria as the cause of those precisely similar local symptoms, which occurred in some of the cases I have related, and that I believe to have arisen from a partial rupture of a nerve. If this belief be correct, the appropriate local treatment almost naturally presents itself, and in detailing the cases I have nearly anticipated what I have to say on the subject. We know that wounded nerves unite nearly as readily as other parts,* and where the union is perfect, discharge their functions as before. Our object, therefore, should be by the most perfect rest to bring about speedy union, and prevent a large cicatrix, or the irritation of a frequently ruptured point of union. I imagine a large hard cicatrix to act much as it has been observed to do in a stump after amputation, or after the manner of the painful subcutaneous tu-

* Descol, p. 35. Swan, p. 180.

bercle becoming a point of irritation on a nerve disturbing and impeding its functions.

It was certainly with no small degree of satisfaction that the treatment founded on the opinion I formed of the nature of the case of Essy M'Mahon was attended with such speedy and complete success ; it was not less fortunate in Case V., and would, perhaps, in Case VI., have been as rapid and as perfect, had the patient applied early, or as readily submitted to the necessary restraint. On the other hand, in those cases VIII. and IX. where the patients exercised the parts as usual, the duration of the distressing symptoms was tedious in the extreme. Where there is heat, redness, and tumefaction about the injured spot, the application of a few leeches, followed by bread and water or saturnine poultices, affords much relief. Where the extremity is cold, enveloping it in cotton appears to be very useful. To meet constitutional derangements or peculiarities the experienced practitioner will best judge according to each individual case ; should the diseased action prove obstinate, I would suggest the administration of mercury to salivation, which is well known to be as valuable in subduing inflammation in a nerve as in other structures of the body.

BIBLIOGRAPHIC NOTICES.

The Spas of England and principal Sea-bathing Places. By A. B. GRANVILLE, M.D., F.R.S. ; Author of the “*Spas of Germany,*” &c. &c.

No one in England was better qualified than Dr. Granville to do justice to the subject of which he has treated in the three volumes before us, for his practice has been for many years extensive, and he has devoted great attention to chemistry and geology, sciences necessary to enable the observer to form a sound judgment respecting the composition and comparative merits of spa waters. We are glad that the investigation of the true merits of these British fountains of health has fallen into such able hands; and we can promise with confidence, that the perusal of Dr. Granville's work will prove both entertaining and instructive. Much as had been hitherto written on the virtues of mineral waters, both in England and the Continent, still a great *desideratum* remained, for no one work contained a general view of the properties of all the spas both here and abroad, and consequently practitioners were left to their own, too often very limited, stock of information, in determining where to order each particular invalid. When the pecuniary means of patients are not ample, it is very wrong in the physician to send them in quest of health to foreign and distant places, when the object might be attained equally well by the means of native mineral waters; but then the question arises, in what do the spas of England differ from those of France, Germany, or Bohemia, and in what from each other? This question could be answered only by a scientific physician who had carefully examined them all, and had studied the medical effects they actually produce. But to treat of this subject as it deserves, the physician must not be merely a skilful practitioner, he must be an observer of nature in the most extensive sense of the term, and be able to appreciate all the accessory circumstances, such as climate, aspect, exposure, locality, and the various other physical conditions which exert so great an influence on the human body; neither must his qualifications end here; his

task requires him to be a man of the world, and thoroughly conversant with the habits and wants of all classes of society, in order to enable him to judge respecting the spas which may best suit each, for wealthy and aristocratic patients will require accommodation as to lodging, facilities for suitable varieties of exercise, and of fashionable amusement, very different indeed from what suits less opulent invalids; neither must our physician be a man destitute of taste for the fine arts, and a nice perception of the influence which scenery exerts upon the mind and body. He must likewise be able to appreciate the feelings likely to be awakened by the contemplation of scenes possessing an historical interest, or of buildings, noted for their grandeur or beauty; for cultivated minds require a constant stimulus and employment, and consequently the upper classes of society must at spas be placed within the influence not merely of suitable society, but of all the auxiliaries which can tend to interest, cheer, and enliven during a course of mineral water. Having enumerated all the qualities that seem necessary to enable a physician to treat of English mineral waters in the way so important a subject deserves, we may add, without fear of contradiction, that Dr. Granville possesses them all in an eminent degree, and as he has spared neither time, labour nor expense to make himself master of all the necessary details, he has consequently succeeded in producing one of the most novel as well as interesting books of the day. In ordinary hands, *the spas of England* would have proved only a work for reference, and not one adopted for continuous or general reading; but it is not so with Dr. Granville's three octavoes, which are as attractive as any book of travels, and are composed in so pleasing a style that we are irresistibly drawn after the author in all his rambles, and gladly accompany him, even when engaged in details and inquiries, important it is true, but apparently dry and uninteresting. We cannot conclude this short notice of Doctor Granville's work, without expressing a regret that he has not visited Ireland. National predilections do not so far mislead our judgment as to make us think that our spas are of such importance as to be likely to attract foreigners to our shores, but surely we possess many mineral waters which, though now neglected, are capable of conferring health on invalids who cannot afford to go abroad. *Thermal* sources we have none, and we are equally deficient in saline aperients, analogous to Cheltenham, Leamington or Pullna, but we have many and valuable chalybeates, and at Lucan a sulphuretted water, of unrivalled efficacy in diseases of the skin; we say unrivalled, for we have known many patients labouring under different forms of psori-

asis and lepra, and which had resisted the most judicious use of Harrowgate water, but speedily yielded to the Lucan spa. Is it not a disgrace to the country, that this invaluable gift of nature is for all practical purposes useless; its once famed spa-house being now abandoned, and its best spring placed under lock and key for the purpose of excluding visitors.

A Letter to Sir B. C. Brodie, Bart., on the Application of the Collegiate System to the Medical Schools of the Metropolis. By the Rev. J. H. NORTH, M. A., Chaplain to St. George's Hospital.

THE author, in discussing in his letter the subject of medical education, immediately looks to that part of the discipline of the schools, which interests the convenience and comfort of the tyro, and the formation of his manners and character. He appreciates rightly the importance of breeding the man and gentleman, as one with the scholar. Far from thinking the author trespasses on foreign ground in bringing this point of the question before the Profession, we are of opinion, that nothing will promote the best wishes of those, who feel the need of some melioration of our present system, more than not only the clergy, but also the laymen taking part in this inquiry. We think that the subject, once in such hands, will cause a wholesome movement, and advance in proportion to the author's desires. It is only by the will of the public, that in a country like our's, where individual liberty and corporate rights are held almost sacred, we can hope to accomplish a great work in favour of so desirable an end.

The points, the author says, which come within the scope of his observation, "are the comfort and the discipline of medical students, a very large class of the youth of England, upon the character of whom must depend, in no small degree, the comfort of the whole community." The reality of this statement is keenly felt everywhere throughout the three kingdoms. We entertain some hopes in common with the author, from a reasonable and practical application of the collegiate system to medical schools, for the improvement of the character of this body of the Profession; but we regard it at the same time only as one of a number of means. There are radical evils in the style of education, required of late years more particularly, and for their correction his proposal would avail nothing: Here learning has been sacrificed to vain philosophy; classic recollections too often to needless and secondary knowledge. Re-

verence for the forms of religion, as the guardians of morals, has been offered too largely on the shrine of social and political change. The medical tyro is forced to enslave his mind to philosophy, and in such a way, that his feelings are blasted, and his opportunity to acquire a practical, the only useful knowledge of his art, is equally curtailed. Let his brain be as full of chemistry as the volumes of Berzelius, prolific in physiology as the octavoës of Burdach, burdened with medicine as the tomes of the *Dictionnaire des Sciences Medicales*, supplied with anatomy as the museum of Hunter, he will still leave the schools untried in the world, unfit to contend with its trials. He may return to his home crammed with mixed knowledge, but for that in no way better as a man, and too likely worse as a physician. His taste uncultivated, his manners unrefined, and his character not formed, he is still at the mercy of circumstances in every respect. This knowledge will scarce elevate him above the multitude; he has no real superiority over those surrounding him, and he may fall into debauchery and ill fame, having nothing to oppose to vulgar eloquence, nor refinement of feeling enough to keep him from an untasteful course of life. Thus educated he can never aspire to the society and companionship of a modern Mæcenæ, nor can he say with the accomplished Roman poet :

“Pone me pigris ubi nulla campis
Arbor æstiva recreator aura,
Quod latus mundi nebulæ, malusque
Jupiter urget :
Pone sub curru nimium propinqui
Solis, in terra domibus negata ;
Dulce videntem lalagen amabo,
Dulce loquentem.”

The grand faults of medical education in our metropolis are the sacrifice made of polite learning, the exaction of too minute information, together with over attention to lectures, and the sore neglect of the practical study of medicine in the clinical wards; and again, we agree with the author also in thinking, a too decided neglect of some provisions of the collegiate system is fruitful in ill.

The author in arguing these opinions says :

“The life of a medical student may, perhaps, be well described by the word desultory. Supposing him to have left home, probably in some remote part of the country, and to have come to London solely for the purpose of professional study, not having any relatives or near connexions in the metropolis, we can hardly conceive any one in a position less comfortable, or more exposed to temptation. With few exceptions, the age to which he comes to London is, I believe,

nearly the same as that of a freshman going up to one of our universities. But what a striking difference there is in the provision made for the comfort and discipline of the young student in the two cases ! I will briefly exhibit the contrast. As soon as a man goes up to Cambridge, (I speak of Cambridge as having more certain knowledge of the system there pursued), he is required to present himself before his tutor, whose authority over his pupil extends not only to his studies, but to the regulation of his hours, and nearly all the matters affecting his domestic arrangements. It is upon the point of comfort that I am particularly speaking now. Rooms are provided either within the walls of the college, or in some house licensed for the purpose by the university, the proprietor of which is strictly answerable for his conformity to the regulations which the college issues. Dinner is provided in the hall, at which the presence of the under-graduates is not only expected but enforced ; and for the other meals, commons are dispensed in stated quantities, and at fixed prices. The bills for necessary articles incurred with the tradesmen of the town pass through the hands of the tutor, who, at the request of parents and guardians, may thus have a vigilant eye upon the expenses of those committed to his care. The rules respecting rooms, commons, furniture, and other matters of this kind, are sufficient to ensure the comfort of all who are disposed to avail themselves of the help which is thus afforded them. That these rules may be evaded, that in some particular instances they fail of producing all the comfort expected, these exceptions, and such as these, do not constitute any argument against the system. My assertion is this, that for a young man going up to the university, circumstances are created favourable to his comfort. The medical student has none of these advantages. There is no officer connected with the hospital at which the pupil is entered, whose province it is to guide him in the selection of his apartments ; there are no limits within which his choice is confined ; there is no warrant for the respectability of the persons at whose house he may take up his abode ; there is no provision made for the regularity of his meals, nor for any of those arrangements upon which his comfort depends. He has to settle and arrange for himself all those household affairs, which present no slight difficulty to those who are far older and more experienced than himself. He is alone ; and solitude in London is of all things the most desolate. In these circumstances, he applies for guidance to those who, not unfrequently, are least able to render him effectual aid ; he is at least as likely to fall into bad hands as into good ; it may be, a notice stuck up in the hall of the hospital catches his eye, and he takes refuge from his perplexity in the first lodging-house that presents itself ; and in this situation, unfriendly to his moral character, unfavourable to study, not admitting any superintendence, and destitute of all domestic comfort, he passes the first months, perhaps, which in the whole of his life have not been spent in the society of his family or friends."

This is a fair outline, showing the contrast between the position of the medical tyro and the freshman on arriving respectively at the grand sites of learning, the former at London, and the latter at Oxford or Cambridge. There is, however, a difference between the two classes of men which lessens materially the weight of difficulties on the medical youth in the metropolis. Generally he has had a boarding school education up to twelve, thirteen, or fourteen years of age; having left the paternal roof for this purpose at seven, eight, or nine years' old. Commonly also, he has resided from three to five years with some more noted practitioner in his neighbourhood, else what is still more general, with some medical gentleman of high respectability in full practice in the nearest town. Frequently also, such persons are connected with an hospital, a dispensary, or else have an extensive polyclinic of poor people in their district. During his pupilage in the first case, he fills the post of clinical clerk; in the second, he does the part of assistant; and in the third case, he visits the poor on alternate days with the doctor. All this time he is considered as one of the family. We do not wish to convey the idea that there are not numerous and sad abuses made of the system of pupilage; but it is the advantage of it in the broad working we would signalize. In this manner he is initiated into the whole technical part of his future profession. He becomes early familiarized with the sterner realities of an independent career in years to come. He adopts the habits and principles of an old adept; and the groundwork is thus laid for that originality of mind, and various medical practice, for which England is so remarkable; and which is otherwise only seen at this hour in some measure in Italy, but from quite other causes. We are firmly persuaded it is to this part of our system of medical education, that the English practitioner owes chiefly his superiority in point of practice over the superfluously learned doctor abroad. Empiricism founded on long and large experience is much preferable to rational practice guided by the particular dogmas of schoolmen. We are not blind, however, to the evils also most surely rooted in our existing system of pupilage; but before a satisfactory regulation of our central schools, and particularly of the clinical department, is made, we would regret to see any fatal blow aimed at the other. This once accomplished, however, we would be among the first to aid in the desirable change. It is in the metropolitan schools where the true ills of medical education lie; and they are in the main to be ascribed to the imperfections of our clinics, the too short duration, and the total deficiency of the special clinics. This practical department of medicine has been sacrificed to

the wearisome testimony of lecturers, and the discussion of the amphitheatre. As it is, however, the pupilage fulfils in part, though imperfectly, those sage counsels of the great father of medicine, in which, even here, is marked depth of wisdom, “*quis nam enim medicinæ, scientiam sibi vere componere volet, cum his ducibus voti sui comportem fieri oportet, natura, doctrinam, moribus generosis, loco studis apte, institutione a puero, et tempora.*” Far from being a novice on coming to the metropolis, the medical tyro is withal too familiar with the wiles of a crooked world. If anything deserves regret in him, it is perhaps, that he should have learned so early the excesses of men, and the worst side of humanity. He is seldom the dupe of the crafty, but not the less the victim of passion; and docile still, his tastes are liable as other men's to be nurtured to depravity. He has already mingled much in various society, his feelings have been strongly nerved, and he is full of experience, indeed almost prematurely so. Accustomed to the society of people much above his years, and already having taken an active part in life, he enters the metropolis with many advantages, enabling him greatly to avoid the snares that beset him there, and to bear up against the trials of exile from home with a strong heart. Man at best is frail, and youth most so; and we agree with the author in the opinion, that some application of the collegiate system would be of inestimable advantage to this class of the youth of England.

But the question is, how much of the collegiate system in force in Oxford and Cambridge, can serve the object of contributing fully to the comforts of the medical tyro, without causing him inconveniences. Any system proposed for the comfort of the student ought never to be a hindrance to his studies, nor yet take too largely from his personal freedom. This is an important consideration, as his studies are always manifold, and not seldom accidental to times and places according as opportunity occurs. Again, any unavoidable restraint, intentionally instituted, does create an artificial necessity capable of affecting society mischievously. Persuaded of the evils of formality when over done, we look with a careful regard to the maintenance of personal freedom to the medical tyro. Any application of the collegiate system ought, we think, to aim simply to answer the broad object of the author, to create every fitting comfort for this “class of the youth of England,” to shape the means so as to make it really desirable to themselves to accept of such provision; but it should be essentially voluntary for the tyro to avail himself of them. We are, however, of opinion, that not only the inducement of superior convenience should be held out

to him, but that pecuniary advantages should be afforded to such as out of choice will second the views of the college, in order to be a check on the wilful and giddy.

We approve fully of the proposal for providing the comforts of life within the walls of the medical school or college. It would prove of inestimable advantage, particularly in the metropolis; and were the medical tyro placed in so favourable, so desirable a position, the author has ably pointed out the vast advantages to follow; greater convenience for study, and escape from a series of needless temptations into immorality.

So far as regards the provision of apartments in the school, we consider the plan good, and we do not doubt it will have the full approbation of the public. We are aware that this has been several years in contemplation on the part of one of our chartered colleges, which has already made strong efforts to preserve the good old system of English education, against the encroachments of the loose liberality of an epoch of social revolution. We are convinced, however, that to make such a provision desirable to the officers of medical schools as well as to the majority of pupils, and in fact practicable, the regulations relating to it must insist on the latter taking rooms in the college, whether he chooses to occupy them or not. This would insure the regular repayment of the outlay for the buildings; it would induce the majority of young men to submit willingly to college discipline; and it would leave complete freedom to another class of persons, who possess the means of placing themselves in a still better position. We are not persuaded that too exclusive an association of young people among themselves is on the whole advantageous; it has its disadvantages, and the genial minds with larger means and more scope, will profit better in mixed society, and in the field of larger experience. The man, too, has always in the end to brave the trials of the motley world; and when circumstances favour him, and his principles of character are well formed, perhaps the sooner he does so the better. For these and other reasons, should our hopes and the author's be eventually realized by the introduction of the collegiate system into our medical schools, we wish, for our part, that the residence in college may be made obligatory only under certain restrictions. It is but just, that those medical youths resident in hospitals, and with their own families, within the limits of the metropolis, should not be expected either to reside in college or to pay the fees of such residence. With these exceptions every tyro should pay the college fees for residence. This will ensure the submission of the majority to the discipline of the schools, and all comforts proceeding from this provision to the

needy youth, and prevent any one from neglecting, from a finical disposition, to avail himself of its advantages. Again, to prevent its working becoming a course of unpleasant restraint to any class of persons, the liberty to reside elsewhere out of college will ensure individual freedom enough without the cost of an extraordinary sacrifice. Indeed, a few pounds might be too trifling a consideration in some cases; and it would, therefore, be prudent also to require the approval of the guardians of all such as desire to dwell beyond the walls of the college.

To secure more safety to those who choose to live beyond the walls of the college, in the choice of so doing a few houses could, as the author proposes, be licensed by the medical schools, which might offer every thing desirable for the comfort and character of the student. Here a certain amount of discipline might still be put in force; but it should be free to him to accept or not of such conditions. In the latter case, however, it might be well to require the sanction of his guardians, as an additional check on the imprudence of youth.

The second part of the proposal of the author, for the comfort of the tyro in medicine, relates to the comfort of his table. We are perhaps not prepared to go equal way with him in admiration of the entire system of college discipline of the old universities; and we would not like to see the daily dining together enforced. We look upon commons in this view—that they ought rather to be regarded as meant to satisfy the daily wants of the medical youth in a convenient manner than to submit him to the control of formality. We see the great advantage the common dinner offers to the majority, and the good purpose it answers, in drawing youth from the tavern, or else the unfavourableness of the solitary repast. We perceive the happy influence it must have on the habits and manners; and we are of opinion the aim of it might be seconded by fine, in the shape of an obligatory subscription, as the farthest extent of compulsion. We would likewise, that similar exemptions should be made from the rule in this instance, as we have proposed beforehand on the question of evidence. The example of King's College, in this particular, is no doubt familiar to the author, and well worthy of general imitation. The happy medium has been the plan adopted here, which is not the sole practicable in our metropolis, but the only suitable one for the true wants of our medical youth. If we are right in the memory of the arrangement, it is thus:—The principal of the college, and six of the professors in turn, dine daily at the common table, and the former presides. This ensures the right management of the table in every regard, as well as in the particular of gentlemanly

deportment on the part of every individual present. It will be found tenfold better, to make the commons attractive enough over the tavern dinner, to induce the medical tyro to prefer the former of his own accord, than to oblige him to make use of them by a too severe law. It seems to us, however, that those who live in college might properly be expected to dine in common; this would be a most important part of discipline. But even in this every reasonable exception ought to be made; and, among others, the clinical scholar should have all possible freedom from the restraints of form.

Touching the part of the system of our old universities, which relates to the inquisition of the student's expenses, we are convinced it will be needless in almost every case. There is a great difference between the medical scholar and the freshman of our universities. The one, in most instances, has long been sensible to the value of money, and learned to dispense with luxuries. The second often, however, is unacquainted with the stern reality of humbler life, and experience of the need of carefulness fails him greatly. The medical tyro is precocious as a man, and in most cases he needs no careful eye to overlook his expenditure. We see no harm, however, that the tutor may watch over this part of the conduct of his pupil at the express desire of his guardians. This would answer fully particular needs, leaving the man of character without vexatious control, and to the management of his affairs, which he cannot learn too soon.

The author, however, in discussing the subject of discipline, seems not aware of the impracticability of the whole system of the old universities for medical schools in the metropolis. He says:

“ If from this view of the condition of the medical students we turn to a somewhat different one; if, from speaking of their comfort, we come now to speak of their discipline, the case becomes far stronger, and one which yet more powerfully calls for some improvement. I will again recur to the situation of under-graduates in support of this part of my argument. To speak briefly, the means insisted upon to secure regularity of conduct are these: daily attendance at chapel, again at lectures, a third time at hall; and lastly, the system of gates, by which a return of every under-graduate who is out after ten o'clock at night is daily made to the tutor or dean. The punishments for offences against these laws consist of impositions and deprivation of liberty for periods varying in length, and eventually loss of terms and consequent postponement of the degree. I am not aware, that the discipline of our universities has ever been considered too severe; nor do the tutors and deans find that they have too much power for the purpose of maintaining due attention to the necessary

points of correct behaviour. Yet of all these restraints—these wholesome and necessary restraints—the life of a medical student is wholly devoid. There is, indeed, some attendance required on lectures, some in the wards of the hospital; but, with this exception, the pupil is entirely his own master; that is, in all matters relating to his hours, his expenses, his companions, his religious and moral habits, he is utterly without a check; and in all the heat and inexperience of youth, he finds all London before him for the uncontrolled gratification of his favourite desires, whatever they may chance to be.”

It must be clear to all, that the attendance at chapel can only be expected from the few, unless there is one especially appropriated for every class of sectarians. The only rule strictly admissible in our medical schools on this point is probably that in force at King's College. This admirable institution, although adhering completely to the Established Church of our country, has provided for the needs of society in leaving this an open question. King's College recollects at once the two grand duties it has undertaken to fulfil—the education of the people, and of course also of the medical youth—and the breeding of the man in the true tenets of the Established Church. King's College, to arrive at this double aim, requires the attendance of students at chapel, in as far as it is agreeable to the more general intention of education taken in its broad sense. Hitherto the system has been fully approved of by the public; and it only requires the alliance of much facility for the practical study of medicine to succeed completely in the medical department. In the event of the introduction of the collegiate system into our medical schools, the attendance at chapel should be enforced on all members of the Church, and on those whose guardians give their approval to it. It is for the many the legislator must particularly provide; and we are of opinion, that this provision would accomplish the farthest views of the author really practicable. He has distinctly a double object before him—the comfort and well being of the medical youth of England, and their moral, and religious, and professional discipline.

We hope on a future occasion to return to this subject, and now take our leave of the author, with the conviction that he has the merit of pointing out a means of elevating the moral character of the profession, and of course of improving its social position.

The Sanative Influence of Climate. With an Account of the best Places of Resort for Invalids in England, the South of Europe, &c. By Sir JAMES CLARK, Bart., M.D., F.R.S., &c. London, 1841. J. Murray. Third Edition.

It has given us great satisfaction to receive this work—so valuable from the character of the author and the importance of the subject. All classes, professional and non-professional, will consult its pages with an anxious interest, and they will find it a true guide. There are no over-drawn descriptions of balmy and health-bearing breezes ; nor too highly coloured accounts of spots where health for ever reigns. There is here nothing that will deceive ; but there is a simple statement, by an experienced and trustworthy and eminent physician, which will guide not only the medical man in his advice on one of the most important points of practice, but also the anxious friends of a class of patients, whose moral and physical constitution make them equally the objects of the most lively attachment and deepest apprehension. Yet we are not among those who believe that the beneficial effects of climate are evinced chiefly in consumptive diseases, and fully agree with the author in the following remark :

“ Such an opinion could have originated only in a very limited acquaintance with the influence of climate on disease ; and is indeed so far from being a correct view of the matter, that, were the character of this remedy to be estimated by its effects on consumption, it would be justly valued at a very low rate.”

The whole of the first chapter of this excellent work should be carefully studied, as it contains matter highly important to the physician and the dyspeptic invalid. There is one point, however, on which the learned author does not lay sufficient stress, namely, the beneficial influence of travelling by the action of the mind on the physical constitution. In speaking of hypochondriasis, it is true, Sir James Clark alludes to the additional advantage which a taste for art and nature bestows on the invalid ; but he does not insist sufficiently on this point. It will, we believe, be found in almost every case, that the person of education, who has been trained to love and admire the glories of art and of nature, whose mind is filled with recollections of the past, and who takes so deep an interest in these things, as for a time at least to forget his bodily sufferings, will reap more decided advantage and run less risk of injury from travelling, than an individual whose mind is comparatively uncultivated. And this explains why it is that individuals of the better ranks derive so much greater advantage from change of air than those of the lower classes.

There are so many topics handled in Sir J. Clark's work, that it would be impossible in our limits to attempt an analysis of them. The work is unique, and quite indispensable to every one who travels for health, and to every physician who has any extent of practice among the higher orders of society.

The Elements of Practical Obstetricy. By THOMAS DENMAN, M.D., &c. *With Remarks on concealed Pregnancy, Legitimacy, &c.* By JOHN MACKINTOSH, M.D. Edited by M. ROGERS, M.D.

THIS is a new edition of Denman's Aphorisms, with additional information on certain medico-legal questions collected from the late Doctor Mackintosh by Doctor Rogers, one of the most indefatigable editors we know, and whose operations embrace medicine and midwifery, large editions and small. The zeal he has displayed is extremely praiseworthy; and though we cannot agree with some of his additions, yet others are calculated to be very useful. The medico-legal supplement contains some good things, and others somewhat crude, which is not uncommon in the writings of Doctor Mackintosh. Doctor Rogers thus speaks of the alterations and additions which he has made. The original manual was "chiefly devoted to preternatural labour and the use of instruments. But as it touches on natural labour we have thought it right to add something to its meagre and insufficient details on that subject. We have put in all that was absolutely required, and nothing that was not absolutely necessary, so as to make the work what we design it to be, a complete companion and counsellor for the accoucheur."

Altogether the book will be found improved, and very useful to those who find manuals of this kind necessary. We wish Dr. Rogers all success.

A Complete Practical Treatise on Venereal Diseases. By W. ACTON, late Externe at the Female Venereal Hospital, Paris. Octavo, pp. 410, plates.

MR. ACTON spent several years in Paris, diligently studying venereal diseases; he attached himself in a particular manner to the clinique of M. Ricord, of whose precepts and practice he is a devoted admirer, and to whom, in the formation of the present work, he candidly acknowledges the most extensive obligations. Whoever, therefore, wishes to become acquainted with the opi-

nions at present most extensively prevailing in the French metropolis, on the subject of syphilis and its treatment, should possess himself of Mr. Acton's book; and, although we are not prepared to agree with all the author's opinions, believing, as we do from actual observation, that there are certain differences existing in the ordinary forms of the disease met with in Paris and Dublin, and, moreover, that, the treatment which is borne well by a British constitution, is not always similarly endured by a French one, we willingly admit, that, taken altogether, his work is one of the most complete systems on venereal diseases, in all their forms and consequences, that we are acquainted with. His descriptions of the disease in the female, from the extensive opportunities Paris presents of making vaginal examinations, are peculiarly valuable, and the plates of the varied local changes producing venereal and vaginal discharges are extremely beautiful; his plates indeed are first rate—quite true to nature, (we may instance the coloured drawing representing condylomata and raised mucous tubercle), and would alone ensure an extensive sale of the work. They are admirably suited for a lecturer to demonstrate the different forms of syphilis to his class. We could have wished he had introduced fewer new words, such as blenorragia for gonorrhœa, balanitis for gonorrhœa præputialis, &c. In speaking of the treatment of blenorragia, he divides it into—1. Prophylaxis; 2. The abortive, &c. By the second he means those remedies which cut short the disease. Now this we submit is straining the word out of its legitimate English signification. For our parts we hope that our attempts to cure gonorrhœa may never prove *abortive*. Mr. Acton's description of gonorrhœa præputialis, or balanitis, is very good.

“ DEFINITION.—Balanitis consists in inflammation and patchy excoriation of the glans penis and lining of the prepuce, accompanied by a muco-purulent discharge.

“ CAUSES.—The *predisposing* cause of balanitis is undoubtedly the existence of the prepuce, for we do not meet with the affection in persons who have been circumcised.

“ The *exciting* cause can be usually traced to the application of some irritating secretion, such as the menstrual fluid, blenorragic matter, &c.; but, although frequently of venereal origin, this affection often depends upon other causes than impure connexion. I have frequently occasion to see it in boys who are inattentive to cleanliness, and allow the secretion of the glandulæ odoriferæ to accumulate between the prepuce and glans.

“ I have been able to trace it to a discharge from the urethra, produced by stone in the bladder, or by the passage of instruments. The surgeon should be aware of these facts, otherwise he may fall into the error of attributing to infection the simple effect of inattention to

cleanliness. I might cite more than one instance where this has occurred. 'The prepuce,' adds M. Ricord, in one of his clinical lectures, 'is an appendix to the genital organs, the use and object of which I could never divine; in place of being of use, it leads to a great deal of inconvenience, and the Jews have done well in circumcising their children, as it renders them free from one of the ills of humanity. The prepuce is a superfluous piece of skin and mucous membrane, which serves no other purpose than acting as a reservoir for the collection of dirt, particularly when individuals are inattentive to cleanliness.'

"As I stated above, the disease may affect either the prepuce or glans; part only, or their whole surface, may be the seat of the inflammation; it is particularly liable to occur in the neighbourhood of the frænum.

"The SYMPTOMS of the affection are the following: a slight itching, which is soon after succeeded by heat and pain of the part, attended by an increased secretion of the glands, which becomes more or less purulent. The prepuce soon swells, in consequence of a tumefaction in the cellular tissue, which so largely enters into its composition, and this swelling may occur in a very short period. Not unfrequently an inflammatory or erysipelatous condition succeeds this œdematous state, and may be confined to the prepuce only.

"Usually no pain is felt in making water, nor does any chordee exist; in a few cases, however, when the urine passes over the inflamed prepuce, a scalding is felt, and in erection the glans may become too large for the swollen parts around; a pain like that experienced in chordee may occur; and it is very difficult, when phymosis exists, to decide whether the balanitis is accompanied with gonorrhœa or not.

"Balanitis is usually acute in its progress, but it may become chronic. Its termination is commonly favourable; however, gangrene sometimes ensues as well as erysipelas, more especially if the surgeon applies leeches on the diseased and œdematous prepuce. The surface of the glans and prepuce frequently becomes irregularly excoriated, resembling a blistered surface.

"COMPLICATIONS.—Balanitis, however, is not always the simple affection I have here described; in some instances abscesses may form in consequence of the collection of matter between the glans and prepuce, which is swollen or narrow, or a circumscribed inflammation of the cellular tissue of the prepuce result, terminating in abscess; in either case these collections of matter will point at the upper part of the penis, and gangrene will often attack the prepuce, and, destroying it, the glans penis will become exposed. Gangrene rarely commences at any other point than this, and may destroy the whole penis, or be limited to the prepuce, as was the case in the individual from whom the drawing was taken. This tendency of the prepuce to become gangrenous at its upper part has been variously accounted for. Some suppose it to depend upon the greater number of vessels

in this situation ; but it more probably arises from the friction against the trousers, to which it is subject in all the movements of the body.

“ A very frequent complication is chancre, which, masked by a narrow prepuce and purulent discharge, leads the surgeon to believe that the patient is suffering under simple balanitis.

“ Secondary symptoms may become also a complication. Thus the mucous tubercle, occurring on the prepuce, which is already the seat of a balanitis, will increase the disease ; it will likewise be one of the causes of it ; hence we have what is called, improperly, a *syphilitic balanitis*, for the complications produce or exaggerate balanitis, not in virtue of any specific poison, but as a consequence of the secretion, which is very acrid. Eczema, particularly in old people, will constitute a complication, and, like vegetations, will be more difficult to cure, in proportion as the surgeon is unable to expose the glans.

“ Balanitis, without any complication of chancre, may cause a bubo ; this, however, is rare, and we seldom find that buboes arising from this cause suppurate ; they are merely sympathetic, and when they do suppurate, never give rise to virulent sores capable of being inoculated.

“ Secondary symptoms never arise as a consequence of simple balanitis. Such is the result of M. Ricord's researches on inoculation. I have never heard of any cases of simple balanitis cited which was followed by secondary symptoms. M. Cullerier, who supposes that a simple gonorrhœa may give rise to them, says he has never seen a case of balanitis which he could trace as the cause of constitutional syphilis.

“ M. Puch, one of the surgeons at the Venereal Hospital, considers that simple balanitis may produce a chancre, and thus induce secondary symptoms. He inoculated a patient affected with simple balanitis, unaccompanied by chancre, but in whom vegetations existed. The characteristic pustule was observed, and he had the kindness to show me the case, and concluded that simple balanitis without ulcerations may give rise to syphilis. This conclusion I cannot adopt for the following reasons : he admits himself, that it is an exceptional case to see the inoculation succeed ; he has observed it in two cases. M. Ricord has never met with similar results ; it is, therefore, natural that we should seek an explanation of it in some circumstance beyond a simple balanitis. I believe that many circumstances may explain this occurrence ; the patient, before entering the hospital, had connexion, and as his prepuce was long, the syphilitic virus may easily be supposed to have remained within its folds without producing chancres, as the glans was covered with mucus and smegma ; for we find that the virus does not produce its effect until it comes in contact with the mucous membrane or skin, or till an abrasion results, or it is introduced into a follicle. The virus may remain on the prepuce inert, provided there is a secretion which protects it, in the same way that it may be kept in glass tubes, and yet at the end of the eighth day produce a chancre. I believe, then, that the true explanation of these exceptional cases depends upon some such cause.

“ The DIAGNOSIS of balanitis is very easy, provided the surgeon can uncover the glans, and see in what state it is ; but when phymosis is present, the practitioner is often at a loss to know whether a simple balanitis exists, or if it be complicated with a gonorrhœa, chancres, or vegetations. In these cases an induration may often be felt on the prepuce, and, on interrogating the patient, it will be found that a chancre existed before the phymosis took place ; but if no induration exist, and if the patient have not examined the penis, our diagnosis will be very imperfect ; still one means is within our reach—it is that of inoculation.

“ The PROGNOSIS will depend upon the complications present, for simple balanitis presents nothing unfavourable.

“ The TREATMENT of balanitis in uncomplicated cases is very simple ; it consists in washing the parts, and separating the prepuce from the glans by means of a piece of lint ; this alone will usually suffice to cure the patient. When all other local applications have been tried, I have seen patients, whom other practitioners have had under their care for six months without benefit, consult M. Ricord, and this simple treatment cured them in a few days. The piece of lint may be about an inch and a half long, and half an inch in breadth. Having washed and dried the affected parts, apply this piece of lint between the prepuce and glans at its base, and then draw the former over the glans, taking care to change the lint two or three times in the twenty-four hours.

“ When an inflammatory condition of the parts exists, it will be well to pass a stick of caustic over them, simply to whiten the surface, which should be previously dried by lint ; and during the subsequent days the surgeon should order a wash containing

Liq. Plum. Subac. ʒi.

Aq. Distill. ʒ viij.

and dry lint to be constantly kept between the glans and prepuce.

“ When balanitis is complicated with chancre, of course we must employ the treatment which the latter complaint may require.

“ The complication of phymosis presents some difficulties, as it is often impossible to act directly on the diseased parts. The first thing to be borne in mind is, that we must not operate on the prepuce whenever we can avoid it, particularly if the phymosis be not habitual. Instead of slitting up the prepuce, M. Ricord's plan is to wipe away all the secretion, and introduce a stick of nitrate between the glans and prepuce, and cauterize slightly the parts ; the immediate consequence is considerable augmentation of pain, which may last for half an hour, but on the following day the amendment is very marked. Baths and injections containing opium are useful, but not so advantageous as cauterization : it is the best antiphlogistic remedy with which I am acquainted.

“ If the surgeon, however, be consulted at a later period, when the gangrene is imminent, or has already commenced, the prepuce should be freely slit up without delay, so as to expose the part ; and com-

presses with cold water, or solutions of opium, should be constantly applied.

“ The indications for cauterization, or for incision, are sometimes obscure. When, however, the discharge consists of thick pus, we should cauterize, and the patient thus preserves the prepuce, for in a few days he is able to uncover the glans ; moreover, if there be a chancre, an incision is very prejudicial, as it most probably will inoculate the divided surface.

“ The indication for slitting up the prepuce consists in a discharge of ichorous matter, or when the skin is of a dark livid colour ; if the surgeon do not operate in these cases, nature herself will form an opening.

“ In cases of balanitis, the surgeon should be particularly cautious that the glans is not left uncovered, as inflammation and swelling may occur, and paraphymosis result.”

There is a very curious and interesting chapter on primary syphilitic affections of the mouth and throat, which presents a sad picture of depraved passions and appetites. We prefer closing our extracts of Mr. Acton's useful treatise by some very practical remarks on the use of injections in gonorrhœa.

“ The ABORTIVE TREATMENT.—At the commencement of a discharge from the urethra, and previous to any redness around the orifice, or pain felt in making water, the surgeon will frequently be able, at once, to cut short the affection and cure his patient ; under other circumstances, this plan will not avail. It consists, in addition to the general means spoken of under the head of abortive (?) treatment of blennorrhagia, in employing, during the succeeding forty-eight hours, twelve injections of nitrate of silver at regular intervals : the strength of the solution of the salt should be two grains to the \bar{z} viii. of distilled water. Let the injections be then left off, and cubebs or copaiba be given in the doses above spoken of. If the cases be recent, and the disease not too far advanced, this treatment will succeed, fifty times in a hundred cases, in checking the disease ; and there is no fear of occasioning stricture or swelled testicle at this period of the complaint. Under this treatment the running will at once cease ; but to complete the cure, it will be necessary to continue the cubebs, diminishing gradually the dose. No further recourse should be had to injections, as a continuance in their use would only tend to keep up irritation ; at the end of fifteen days the surgeon may allow his patient to resume his usual habits.

The DIRECT TREATMENT consists in the employment of injections. Of all those I have seen employed, no doubt exists in my mind that by far the greatest benefit is derived from the nitrate of silver. The strength of the solution should be two grains to eight ounces of distilled water. To employ this properly, the following directions should be attended to : during the forty-eight successive

hours, twelve injections should be thus used: let the patient place himself on the edge of a bed or chair, and having previously charged a glass syringe with the solution of nitrate of silver, let him hold it perpendicularly, introducing it perfectly parallel with the urethra; if he now gently push on the injection, the fluid will easily enter the urethra, and come in contact with every portion of the canal; no pressure is required on the perineum, as the force employed is not likely to push the fluid far into the canal. As to its reaching the bladder, and the danger that attends it, I can assure my readers this is chimerical, as any one must be convinced who has ever attempted to inject the bladder; to effect that, a catheter must be employed, and a strong syringe. Even supposing the solution to reach the bladder, the smallest quantity of urine will decompose the nitrate of silver. I have seen, purposely, not only injections, but the solid stick of nitrate of silver, introduced into the bladder without any ill consequences following.

“ A glass syringe is recommended; and we should be careful to tell the patient that a pewter instrument decomposes the salt, and renders it less efficacious. Should we inform him that the solution is one of those preparations which act on pewter, he would refuse to employ it, on the score that if the solution acted on the metal, it would, as a necessary consequence, injure the urethra.

“ The liquid should be injected cold, and a common sized syringe, only half filled, will be sufficient, as the urethra does not hold more than that quantity.

“ Soon after the injections have been employed, there will appear a reddish-looking discharge; this should not prevent the patient from continuing the twelve injections at intervals of four hours, notwithstanding any slight pain which may occur; a slightly purulent, rosy discharge is a very favourable sign, as it shows that the disease will rapidly yield.

“ We have dwelt at some length on the cases for which injections are suited, on the period, the strength, and manner of employing them, because we have the firm conviction that they have not been hitherto correctly appreciated: they have been either too freely praised, or too absolutely rejected, without sufficient trials.

“ Various other injections have been recommended; and Mr. Carmichael, particularly, some years ago, proposed another method, which differs materially from the one we have just spoken of. He advised that injections of nitrate of silver, containing ten grains to the ounce of water, should be used. He purposely called an inflammation, to destroy the special catarrhal one, and stated that gonorrhœa might be cured by this means. He further treated the inflammation of the urethra, which he had occasioned by antiphlogistic means, and on the disappearance of the inflammation, he states both complaints were cured.

“ M. Ricord, in speaking of the merits of this treatment, says that such means will cure a great number of cases; but the surgeon

plays a game of double or quits: if the disease be not cured, its violence is increased in a relative proportion, which is not unattended with danger; hence, he has long since desisted from employing injections in the acute cases of gonorrhœa.

“ With respect to the method of employing injections, we can personally speak of their great advantage, having seen them employed in a great number of cases during the last three years, and *in no one case* have we seen either stricture or swelled testicle follow their employment in the treatment of the affection at its commencement.”

SCIENTIFIC INTELLIGENCE.

Analytical Account of the Researches and Rectifications in the Practice of Auscultation and Percussion, made by Dr. Joseph Skoda, Teacher of Clinical Medicine in the Hospital of Vienna. By William Drysdale, M.D., and John R. Russell, M.D.—I. Auscultation.—The auscultatory phenomena of the respiratory organs may be divided into those of the voice, the sounds of respiration, and those produced by the rubbing of the pleura.

On examining the chest of healthy persons, it will be found that the sound of the voice is heard to a certain degree, amounting to strong resonance in some parts of the chest, while in others it is either not heard at all, or merely as an indistinct humming or buzzing sound. The strength of the sound thus heard in healthy persons is greatest between the shoulder-blades and the spine, weaker under the clavicles, and still weaker in the axilla, and over the rest of the chest; but it varies very much in intensity in different individuals. In disease it is so much modified, both in intensity and in the parts of the chest where it is heard, that many important indications may be derived from the varieties which it assumes.

Before considering the different kinds of resonance in detail, it is necessary to give an explanation of the mode in which the sound of the voice is transmitted through the chest.

As the voice is produced in the larynx, it must in all cases, whether weakly or strongly heard, be transmitted thence; and it would at first sight appear that the strong resonance is produced by a good, and the weak by a bad conducting power of the parts lying between the larynx and the parietes of the chest. Accordingly, it was long almost universally held by stethoscopical observers, that the increased resonance which accompanies a hard compressed state of the parenchyma of the lungs, or the presence of fluid in the pleura, depends on the increased conducting power of the intermediate substance. Several pathological facts, however, tend to throw doubt on the correctness of this explanation.

For example, if the chest be examined by repeated auscultation at successive intervals in the course of pneumonia, when there is hepatization of the lung, resonance of the voice, at one time very strong, at another only weak, will be perceived, while the other signs, particularly percussion, show that no change has taken place in the

degree of hepatization. The cause of the occasional disappearance of the resonance of the voice is the obstruction by fluid matter of the bronchial tubes of the hepatized portion of the lung; for the resonance reappears readily when the patient makes a deep inspiration or coughs. This disappearance and return of the resonance, while in other essential particulars the hepatization remains the same, does not accord with the commonly assigned cause; for, according to it, it would be a matter of indifference whether the bronchial tubes contained air or not. In pleuritic effusion into the cavity of the chest, the intensity of the resonance of the voice diminishes as the quantity of the exudation increases; while the contrary should happen if the increased distinctness of the voice at any stage of the effusion depended on the superior conducting power of the interposed fluid. These contradictions to the commonly received explanation, demand more minute examination of the grounds on which it has been adopted.

The question of the superiority in conducting power of dense over rare bodies, has been too much regarded as an abstract law, without paying sufficient attention to the particular circumstances which may modify or prevent its operation. It is quite true, that dense bodies conduct the sounds more readily than rare ones, but only if the sound be confined to the medium in which it is formed, for it passes with difficulty from one medium to another. For example, the slightest scratching at the end of a long pole is heard distinctly when the other end is placed in contact with the ear, while, if this be not done, (i. e. if the sound be transmitted by the air), nothing at all is heard. The striking together of two stones under water, when the head is immersed, is distinctly heard, while no sound is audible when it is taken out. On the other hand, the human voice, which is formed in the air, is heard furthest in that medium. When the head is dipped into water, sounds produced in the air are heard very faintly, or not at all; and solid substances, as a board or a wall, interrupt sounds more or less completely. The laws of physics teach us further, that sound is more or less reflected in its transmission from a rare medium to a denser one, and that the new medium takes up less than would have been propagated in the same space, had it remained in the medium by which it had been till then transmitted; and the less sound is taken up by the new medium, the greater the difference of consistence and coherence between the two media. The reason why enclosed passages and tubes, whose walls are of solid materials, conduct sounds better than the open air, is because they reflect the vibrations which are thus confined to a small space, and prevented from being dispersed and lost in the surrounding air. If the walls of the tube were instrumental in conducting the sound, it is singular that a hollow tube should be used as a stethoscope, and not a solid cylinder of wood or metal. The voice, therefore, reaches the parenchyma of the lungs, not through the solid parts, but through the air in the trachea and bronchia, and ought to be carried further in the healthy lung, in

which the air penetrates into the air-cells, than in the hepatized lung, where the air-cells and smaller bronchia are obliterated. The vibrations, likewise, should pass more easily from the ear into the light tissue of the healthy lung, than to the condensed parenchyma of the hepatized one, according to the law explained above.

A consideration of these facts would be almost sufficient in themselves to prevent us from acquiescing in the ordinary opinion, that the reason of the voice being louder when the lung is hepatized, than when it is sound and spongy, depends upon its being better conducted by the tissue of the lung when dense than when in its natural condition. Moreover, Dr. Skoda has set this matter at rest by the following simple experiment, which he usually performs in the presence of his class, and which any one may easily repeat.

If the ear be applied to a stethoscope placed successively on corresponding parts of a sound and then of a hepatized lung removed from the body, the voice of another person who speaks through a stethoscope placed upon the lung at an equal distance in both cases, will be heard somewhat more distinctly in the sound than in the hepatized lung: but the distinction is so insignificant, that, were the reverse the case, it would not account for the very marked difference in such a condition of the lungs in the living subject.

Dr. Skoda explains the different degrees of strength of the voice in the chest by the law of consonance.

The fact, that a sound can be heard, observes Dr. Skoda, as distinctly at a distance as at the place where it is produced can only be explained, either by its diffusion being prevented, and its being obliged to remain concentrated during its progress, or by its being reproduced in its course by means of consonance and thus increased. But if a sound be heard louder at a distance than at the place where it was originally formed, this must be by means of consonance alone.

Consonance is a term adopted by Dr. Skoda to express a well known phenomenon; and it may be here properly explained.

A tense guitar string sounds in unison with a note produced in its vicinity, either by another musical instrument or by the voice. A tuning fork held in the air emits a much weaker sound than when placed upon a table or chest. The table or chest must increase the intensity of the sound, by assuming the same vibrations as the tuning fork, or, in other words, by consonating with it. The note of a Jew's harp is scarcely perceptible when it is struck in the air, and it is heard much more distinctly when played in the mouth. Thus the air in the mouth must increase the sound of the Jew's harp, i.e. must consonate with it.

It sometimes happens, that the voice is heard more strongly at the thorax than at the larynx, which in itself is sufficient to show that its strength is increased by means of consonance within the chest. The different degrees of the intensity of the voice heard at the thorax may be explained by the different strength of the consonance within the chest. To ascertain these changes we must discover what it is within

the chest that consonates within the voice, and by what circumstances the consonance is liable to be altered.

The voice as it issues from the mouth is composed of the sound formed at the larynx and the consonating sounds produced in the pharynx, mouth, and nasal cavities. This is shown by the alteration the voice undergoes by the shutting and opening of the nostrils and mouth, while there is no change made in the larynx. The pitch of the voice is evidently fixed by the larynx alone, and the opening and shutting of the nostrils and mouth has no influence upon it; the articulation of the voice, however, and its timbre, depend upon the mouth and nostrils.

As it is certain that the air in the pharynx, mouth, and nostrils, consonates with the sound formed in the larynx, there can be no doubt that the air in the trachea and bronchiæ may also be thrown into consonant fibrations with the sounds formed at the larynx. Hence it is the air in the chest, and not the parenchyma of the lungs, which consonates with the voice at the larynx, as the latter seems ill adapted for consonating, being neither stiff nor sufficiently tense. Those substances, such as air, tense strings, membranes, slips of wood, and thin plates, in which a musical sound is most readily produced, are most easily thrown into consonant of vibrations.

Air can consonate only when confined within a circumscribed space. In the open air the human voice, and every other sound, is heard more feebly than in a room. The air confined within the box of a guitar, violin, piano, &c., consonates with the notes struck on the strings, while the sound is not increased by the consonance of the external air. The strength of the consonance depends upon the size and form of the space in which the air is confined, and upon the properties of the walls which bound the space. It appears, that the consonating sound of the inclosed air will be the stronger, the more perfectly the walls reflect the sounds which spread through the air. A space surrounded by solid walls produces the greatest consonance, while in a linen tent the sound is but little increased. The cause of the strengthening of sounds by the speaking-trumpet is well known.

The air enclosed in a defined space does not consonate with every sound; and should it consonate with several different notes or sounds, it does not reproduce them all with the same degree of strength and clearness. No body can sound in consonance with another, unless it is itself capable of producing the same note, or one whose vibrations form an aliquot part of the note. (Baumgaertner's *Physik* 4 Ausgabe Bd. I. p. 276.)

The deductions drawn from the physical principles just referred to may be used in explaining the consonance of the voice in the chest. The air in the trachea and bronchia can consonate with the voice in as far as their walls resemble the walls of the larynx, mouth, and nasal cavities, in their power of reflecting sound. In the trachea, the walls of which consist of cartilage, the voice consonates almost as strongly as it sounds in the larynx. In the two branches also into

which the trachea divides the consonance must be nearly as perfect. On the entrance of the bronchia into the parenchyma of the lung they have no longer cartilaginous rings, but merely thin irregular plates of cartilage interspersed in the fibrous tissue. As the bronchia ramify, these plates become smaller, thinner, and less numerous, and at last disappear altogether, and the finest twigs of the bronchia consist merely of membranous canals. In the normal state of the parenchyma of the lung, the air in the bronchia consonates less strongly with the voice than that in the trachea, in proportion to the smaller number of cartilages they contain. The conditions which increase the consonance of the voice in the air contained within the branches of the bronchia that ramify in the parenchyma of the lung, are either that the walls of the bronchia have become cartilaginous, or, if still membranous, very thick, or that the surrounding tissue of the lungs has become devoid of air; in all these conditions the walls reflect the sound more strongly than the membranous walls of the normal bronchia; and there must be no interruption of continuity between the air in the bronchia and that in the larynx. If the air in a confined space be thrown into either original or imported autophonous vibrations, which give rise to sound, the surrounding walls not unfrequently partake of the same vibrations, and they do this the more readily the less stiff and hard they are.

The organ pipe vibrates when the air contained in it sounds. The same is true of the speaking-trumpet. The larynx vibrates with every sound produced in it, and its vibrations are perceptible through several inches of animal substance. The walls of the bronchiæ, which ramify within the parenchyma of the lungs, will, if the air within them consonate with the voice, be thrown into vibrations as readily as the larynx, and these vibrations may spread through a layer of fluid or muscle several inches thick even to the parietes of the thorax, and the sounds produced by consonance in the bronchiæ will be perceptible at the walls of the chest.

In order to illustrate the above explanation of the difference of resonance of the voice in the chest, Dr. Skoda performed a considerable number of experiments, a few of which are the following:

As after death the bronchia are almost constantly found filled with fluid, the lungs themselves are rendered unfit for the purpose of experimenting, we must, therefore, choose other tissues whose powers of reflecting sound resemble severally that of the healthy and hepatized lung.

In this respect a portion of the small intestine represents pretty well the more membranous parts of the bronchia, and a portion of the heart and liver the hepatized lung. If a person speak through a stethoscope, placed on one end of a moderately inflated small intestine, consonant vibrations of the voice, in the air within the intestine, may be heard by another person listening through a stethoscope placed on the other end of the intestine. If a layer of solid or fluid substance be interposed between the mouth of the stethoscope and the intestine,

as, for example, a piece of liver or of intestine filled with water, the sound is heard very indistinctly, and not at all if the thickness of the interposed substance reaches half an inch.

If a passage be bored in the liver, so as not completely to pierce it through, and this be spoken into by means of a stethoscope accurately fitted into the entrance of it, the voice may be heard along the whole length of the passage, and for a considerable distance on each side, through a stethoscope placed over it, so strong, that it by far exceeds in intensity the voice proceeding from the mouth of the speaker, which is heard by the free air. The voice can still be heard even when a layer of liver, lung, cartilage, or bone several inches in thickness, be interposed, although naturally weaker and weaker as the thickness of the interposed substance is increased. If the liver be plunged in water, it is still heard through a stratum of water two inches thick. Similar experiments may be performed with the heart and with the larynx and bronchi. If a piece of intestine, prepared as in the first experiment, be plunged under water, observing the precaution that no water gets into the stethoscope, the voice is heard much louder than if the experiment be made out of the water.

These experiments show tolerably distinctly what relation the voice in the thorax holds to the different conditions of the lung. If the voice in the intestine, when not immersed in water, consonate so feebly, as to be inaudible through a layer of lung, liver, or fluid half an inch thick, the consonance in the membranous bronchia will likewise be so slight as not to be heard at the walls of the chest. But, on the other hand, as the voice in the heart and trachea, and in the passage bored in the liver, consonated so strongly, as to be heard through an interposed substance several inches thick, so will the voice in the bronchia of a lung hepatized or infiltrated with tuberculous matter, consonate so powerfully as to be heard louder upon auscultation at the thorax, than as it issues from the mouth.

The consonating voice within the chest differs very much in clearness, loudness, and timbre or quality from the voice proceeding from the mouth, and varies in itself at different times; but as the cause of these differences is not well understood, and as they do not afford any diagnostic signs, it is unnecessary to enter more minutely into them here.

II. *Morbid States of the Respiratory Organs which can give rise to an increased Resonance of the Voice.*—1st. *All Morbid Processes, by which the Lungs can become void of Air, dense and solid, through Infiltration of foreign Matters.*—The walls of a bronchial tube, surrounded with parenchyma, in this condition, must reflect the sound as well or better than the larynx. The strength of the consonance will be the greater the denser the parenchyma. The diseased processes which bring about this change are, hepatization, infiltration of the parenchyma, with tuberculous matter and hemorrhagic infarction, or the pulmonary apoplexy of Laennec. In all these morbid states, before the increased resonance of the voice can take

place, all the air must be completely expelled from the air cells, and the condensed portion of lung must be of sufficient size to contain, at least, one of the larger bronchial branches, which must contain air, and be in communication with the larynx. The more extensive the hepatization is, the more distinctly will the increased resonance be heard over the hepatized part. Accordingly, it is heard most frequently in extensive hepatization, infiltration, with tubercular matter, and the induration remaining after hepatization. Incipient pneumonia, lobular hepatization, (inflammation confined to individual lobules). Œdema of the lungs causes either no resonance or only a trifling degree of it. Solitary tubercles, however numerous, cause no resonance, so long as the intermediate tissue contains air. As Laennec's apoplexy of the lungs is a disease of only rare occurrence, it is seldom observed as a cause of increased resonance, especially as it is, in general, confined to a small extent of the lung.

2nd. *The diseased States through which the Lung becomes devoid of Air in Consequence of Compression.*—In this state the lung never reaches the same degree of solidity as in pneumonia or tuberculous infiltration, and, therefore, the resonance is never so considerable as in the latter affections. To admit of resonance being produced by compression of the lung, the compressed portion must contain a bronchial tube, sufficiently strong, from the number of its cartilages, to prevent the obliteration which happens to the merely membranous bronchiæ. Of all the numerous causes of compression of the lung, such as effusions in the pleura, tumours in the chest or abdomen, aneurism and effusion in the pericardium, curvature of the spine, &c., by far the most frequent, indeed almost exclusive, one of increased resonance of the voice, is the presence of fluid or air in the cavity of the pleura.

The quantity of fluid necessary to produce resonance varies very much in different cases; in some half a pound being sufficient, while in others several pounds are required.

Varieties of the Voice heard in the Thorax.—In the healthy state, in all parts of the chest, except those immediately to be mentioned, there is heard no proper resonance of the voice, but merely an indistinct buzzing sound; but in the space between the scapulæ, the voice may in many persons be heard with different degrees of distinctness, and sometimes so strong that a moderate concussion of the ear may be felt. The same may likewise sometimes be perceived in the spaces below the clavicles, though in a less considerable degree. This resonance of the voice never reaches that degree of clearness and strength which may present itself at any part of the chest affected with hepatization or tuberculous infiltration.

The varieties in the morbid state are :—

1. Strong bronchophony, i. e. that resonance of the voice attended with simultaneous concussion of the ear, or, as Laennec describes it, which penetrates completely through the stethoscope.

2. Weak bronchopony, the voice without, or with imperceptible

concussion of the ear, or which does not penetrate completely through the stethoscope.

3. The indistinct buzzing, with absence of all proper resonance.

4. The amphoric and metallic echoes.

The strong Bronchophony.—The voice is heard as strong, or even stronger, or somewhat weaker than in the larynx. Its appearance at any part of the chest indicates with certainty the existence under the spot of a solid, condensed portion of lung of considerable extent, which may either be in contact with the walls of the chest, or separated from them by a layer of solid or fluid exudation in the pleura of moderate thickness. The presence of fluid in the pleura can never of itself give rise to the strong bronchophony.

The diseased states, whose existence may be suspected from the presence of strong bronchophony, are pneumonia, or pleuro-pneumonia, in an advanced stage, i. e. hepatization, without any or with a moderate amount of pleuritic exudation; tuberculous infiltration of the parenchyma; hemorrhagic infarctus of considerable extent; thickening of the walls of the bronchia, with complete disappearance of the proper substance of the lung; carnification of the lung, or a very high degree of œdema of the lung, along with pleuritic effusion, by which the air has been completely pressed out of the tissue of the lung. Of these, however, the hepatization and tuberculous infiltration are so much more frequently indicated, that the others may in practice be almost left out of view, as they are not only very rare, but also seldom reach such a height as to produce strong bronchophony.

Laennec thought that the resonance from cavities was of a peculiar kind, different from bronchophony. He named it pectoriloquy, and conceived it to be pathognomonic of excavation in the lungs. On close examination, however, it will be found, that of the characteristic signs of pectoriloquy given by Laennec, only one refers to the voice itself, viz., that in pectoriloquy the voice penetrates the stethoscope completely, while in bronchophony it merely enters it; and all the others are only collateral circumstances, such as the circumscribed or diffused extent of the sound, its timbre, the general symptoms, &c. But, as in many conditions of the lung just described, the voice penetrates the stethoscope completely, the distinction proposed by Laennec falls to the ground; and pectoriloquy must be considered as nothing but strong bronchophony, and, therefore, cannot be received as alone sufficient to indicate with certainty the presence of a cavity. As a cavity in a hepatized lung is very rare, while in a tuberculous one it is very frequent, we shall, in the latter disease, when strong bronchophony is heard, seldom err in diagnosing a cavern at the place where it is strongest; but here our diagnosis does not rest on the character of the voice alone, but is aided by the other stethoscopic signs, and the general symptoms and course of the disease.

Weak Bronchophony.—To constitute weak bronchophony, the voice must be clearly and distinctly heard, but unaccompanied by little or no concussion of the ear. It may attend any of those diseases

above enumerated as giving rise to strong bronchophony, and in addition pleuritic effusion of considerable extent and hydrothorax. Its presence alone is insufficient to determine the existence of fluid in the pleura, but recourse must always be had to percussion, auscultation of the respiration, position of the neighbouring organs in making the diagnosis.

Egophony.—A peculiar modification of the resonance of the voice has attracted the attention of stethoscopists, and there has been much discussion (on which our limits do not permit us to enter) to determine its cause and value as a diagnostic sign. It was conceived by Laennec to indicate the presence of a thin layer of fluid between the lung and the walls of the thorax; but later observations have established the fact, that it has been heard in cases of pneumonia and tuberculous infiltration, where there was no fluid at all in the pleura, also in cases where there was a very large collection of fluid in the pleura, and that it has been absent in cases of effusion of various amount; and, finally, in some cases of effusion into the chest, as well as in pneumonia, without any fluid being contained in the pleura, individual words or even syllables partake of the trembling or egophonic character, while others are destitute of it. Egophony may be, therefore, regarded as a mere modification of bronchophony, which has no essential connexion with the existence of fluid in the chest, and has otherwise no particular importance.

The strong as well as the weak bronchophony passes imperceptibly into the indistinct murmur, and there is no defined boundary between these two sounds. It is easy, indeed, to distinguish between the extremes; but the transition sounds it is extremely difficult to distinguish. No conclusion should be drawn from the resonance of the voice, unless it possesses the unquestionable character of bronchophony.

3rd. *Indistinct buzzing Sounds*.—This resonance of the voice affords no definite indication. It does not indicate that the organs are in a state of health, for as many conditions are required to produce bronchophony, the absence of any one may prevent its appearance, *e. g.* the bronchial tubes may not be open, but obstructed with mucus, so that the consonance cannot take place, while at the same time any one of the morbid conditions just mentioned may be present.

III. *Auscultation of the Respiration*.—The passage of the air through the respiratory tubes causes in the healthy state certain sounds which are variously modified by disease.

The sounds produced by the respiration in the larynx, trachea, and larger bronchia, are of a rushing character, most closely imitated by, (as in the pronunciation of the consonant *ch*, German or Greek χ ,) that is, by impelling the air against the hard palate. During gasping it is produced involuntarily. The pitch may differ according to the width of the opening admitting the air, and is generally higher in the larynx than in the lungs; but the character just mentioned remains always constant.

The respiratory murmur in the air cells and smaller bronchia resembles very nearly the sound produced by drawing in the breath with the lips nearly closed, or pronouncing the consonants *v* or *b* while inspiring, or, as it were, sipping the air. It is only heard during inspiration; and during expiration there is heard in the air cells and smaller bronchia either no sound at all, or a very slight blowing noise between the sound of *f* and *h* pronounced in expiration. The respiratory murmur in the air cells is heard most strongly and distinctly in children.

Varieties of respiratory Sounds.—(Skoda.)—1. Vesicular Respiration; 2. Bronchial Respiration; 3. Indeterminate Respiratory Sounds; 4. Amphoric and Metallic Respiration.

The name vesicular respiration can only be applied to that respiratory murmur which resembles sipping air as above described. No other sound which does not display this character distinctly can merit the appellation, even although occurring in healthy individuals. Such a sound can be produced in no other way than by the penetration of the air into the air cells. The sound during expiration has no connexion with vesicular respiration, for it may be entirely wanting, or may be strong or weak without in the least influencing our judgment as to the presence or absence of the vesicular murmur. The cause of the vesicular murmur is the friction of the air against the walls of the air cells and fine bronchial tubes, which, by their contractility, oppose a certain degree of resistance to its entrance. From this may also be explained the great disproportion between the strength of the respiratory murmur in the pulmonary cells during inspiration and during expiration, for in the latter the air encounters no resistance. The case, however, is different in the larger bronchia, and more especially in the larynx and trachea, for the air has no resistance to overcome in its passage through these during inspiration; on the contrary, it is rather drawn in by the rarefaction of that within the chest, while in expiration it passes from a larger space, the air cells into a smaller one, the bronchia, trachea, and larynx, and is consequently compressed; therefore, the expiration is usually louder in those parts than the inspiration. The presence of the vesicular respiration in any part of the lung is incompatible in it with any of those diseased states which prevent the penetration of the air into the air cells, viz., compression of the parenchyma by exudation, tumours in the chest, enlargement of the heart, infiltration of the parenchyma, with plastic (that is pneumonic) or tuberculous matter, or with blood, serum, &c. But it can coexist quite well with solitary tubercles, however numerous, and with inflammation confined to single small lobuli, i. e. lobular hepatization, and is frequently found along with these morbid changes.

The vesicular respiration may be increased to puerile respiration, which depends upon rapid and deep inspiration, and increased resistance of the cells, or it may be rough, from a change in the constitution of the lining membrane of the bronchia. The rough vesicular

murmur indicates the least degree of swelling, and is always combined with increased loudness of sound. The vesicular respiration passes insensibly into the indeterminate respiration, and the rough into the rattles.

The vesicular respiration may occur without any sound in expiration, or such a sound may be present in various degrees of intensity. Sometimes the expiration is much louder than the inspiration. When a sound is present in expiration, it always indicates that there is present in the bronchia some obstacle to the discharge of the air, and this generally consists in a swelling of their lining membrane.

Bronchial Respiration.—To admit of a sound being recognized as bronchial respiration, it must have the same character as laryngeal or tracheal respiration, and can only differ from these in its pitch. It is imitated by blowing through a tube, or with the tongue and mouth, as in the position necessary for pronouncing the consonant *ch* in inspiration or expiration, as before explained.

The bronchial respiration indicates precisely the same states as the weak bronchophony, and these need not be again enumerated. But it never occurs in the normal condition of the respiratory organs, and, therefore, it always indicate a morbid state, even when occurring in the space between the shoulder blades, except in the neighbourhood of the first dorsal vertebra, where it is heard in rare cases in healthy subjects, in dyspnœa, or deep inspiration.

The production of the bronchial respiration, like bronchophony, has been attributed by Laennec, Andral, and others, to the increased conducting power of the condensed lung, (which renders the rushing noise of the air streaming in and out of the bronchiæ more audible). But, in addition to the foregoing arguments, opposed to better conduction of the voice, depending on the condensed state of the lung, the following is conclusive against this opinion. As the bronchia are merely passages for conducting the air into and out of the air cells, the more the latter are capable of being expanded and contracted, the greater will be the streaming of the air through the air, bronchia, and *vice versa*. But in the healthy state, where the streaming of the air is greatest, there is no bronchial respiration at all; while in a completely hepatized lung, where there can be no expansion or contraction of the tissue worth mentioning, and consequently, no streaming of air through the vesicles, the vesicular respiration is loudest. The true explanation is undoubtedly that of Dr. Skoda, viz., that it is from the air in the bronchia vibrating in consonance with the respiratory sound of the larynx, trachea, and bronchi, the condition necessary for consonance being afforded by the condensed lung, as already explained under the head of bronchophony.

The bronchial respiration can be in pitch higher or lower, and in intensity weaker or stronger than the laryngeal respiration; differences which depend upon the part of the windpipe, with which the air in the bronchiæ consonates, for it does not always consonate with the larynx. These differences depend on other circumstances likewise, which it is unnecessary to detail here.

The cavernous respiration of Laennec differs in no essential particular from bronchial respiration, and cannot be taken as a diagnostic sign of cavity, unless unaccompanied by the amphoric or metallic echo.

The respiratory sound, named by Laennec *respiration soufflante*, and described by him as giving rise to the sensation, when listened to, as if air was drawn from the ear of the auscultator, during inspiration, and blown into it during the expiration of the patient, is merely a strong form of bronchial respiration; and its strength depends not only upon the greater or less distance of the bronchus or cavity in which it is formed, but also upon the rapidity and amount of motion in the lungs, and the more or less perfect consonance of the parts.

Indeterminate respiratory Sounds.—Under this term are comprehended all those respiratory sounds which cannot be referred to any of the preceding forms of respiration, or to the rattles or friction of the pleura, to be afterwards described. The respiratory murmur in the air cells is sometimes so ill-marked as to be indistinguishable from the respiratory sounds which spread from the deeper bronchiæ or larynx, and a weak rattle at a distance may resemble an indistinct respiratory murmur in the air cells. As such a respiratory murmur may arise from many causes, it is impossible to say what is the cause in any given case—whether it be the entrance of the air into the air cells; the stream of air into the larger bronchia, or a distinct rattle, or two or more of these combined. Neither the sound derived from the larger bronchia, when it is not bronchial respiration, nor the indistinct respiratory murmurs, afford grounds for forming any conclusion as to the condition of the parenchyma of the lungs. Such being the case, any subdivision of them is superfluous, and they may be all included under the name of indeterminate respiratory sounds. Although a very skilful ear may be able to detect the transition of the distinct forms of respiration into the indeterminate, yet whenever a sound is at all doubtful, it is much better to class it among the indeterminate, and to call in the assistance of the other signs and indications in forming a diagnosis.

The Rattles.—The rattles are sounds produced in respiration by the breaking of the air through fluids, such as mucus, blood, &c., and sometimes by its passing over solid substances, such as a fold of mucous membrane, which, in consequence, may be thrown into vibration. Most of these resemble the bursting of bubbles; others are like the creaking of leather; crepitation of salt, &c.

They differ very much in the loudness and clearness with which they are heard; also in dryness and moistness, in frequency, size of the bubbles, &c.; but to describe all these circumstances would lead into too minute details for the present object.

Division of the Rattles.—1. The vesicular rattle; 2. The consonant rattle; 3. The crackling, or dry crepitating rattle with large bubbles, (*râle crépitant sec à grosses bulles* ou *craquement* of Laennec); 4. Indeterminate rattles. 5. Rattles with amphoric echo.

The vesicular rattle is that produced in the air cells and small bronchial tubes. Its peculiar character is that the bubbles are very small and of equal size. It indicates the presence of fluid, such as mucus, blood, or serum, in the finest bronchial tubes, and air cells; and also that the latter are penetrated by the air. Its presence, therefore, shows that none of the morbid conditions which prevent the entrance of the air into the air cells can exist.

This sound corresponds to the moist crepitation of Laennec, which he considered as pathognomonic of incipient pneumonia. Its occurrence, however, in its pure form, is rare in pneumonia; and it is likewise heard in other morbid affections, such as oedema of the lungs, tuberculosis, and even common catarrh. With the view of obviating this difficulty, Laennec divided it into crepitating and subcrepitating; but, as numerous facts attested by Andral, Chomel, Cruveilhier, and Skoda, prove that this is not a sufficient distinction, the presence of the crepitating rattle can only be held to prove the existence from some cause or other of fluid in the air cells, and their permeability by air; and we can only conclude, that pneumonia is present if we discover its other indications.

The consonant rattle is clear, high in pitch, and the bubbles which form it are unequal in size. Such a rattle is produced in the larger branches of the bronchia, and in the trachea; but when heard at the parietes of the chest, after having been transmitted through the lungs by conduction, it loses much of its height and clearness. If, however, the conditions for consonance are present, it is heard of an intensity and clearness equal to that at the place of its origin.

The consonant rattle is therefore diagnostic of the same state as bronchophony and bronchial respiration; but, as rattles seldom occur in exudation, it indicates in general pneumonia or tuberculous infiltration.

Laennec's dry crepitating Rattle.—This sound, according to Laennec, resembles that made by the blowing up of a dry pig's bladder. It is held to be a pathognomonic sign of vesicular and interlobular emphysema; but it occurs only in those cases in which the cells are expanded to the size of a barleycorn or bean, and communicates with a bronchial tube. It occurs also when the bronchial tube is expanded into a sac, and in excavations of the lung, which do not communicate with the bronchia by too wide an opening, and have membranous walls. The cause of the appearance seems to be that the air cells, from having lost their resilience, instead of contracting during expiration, merely collapse when the air leaves them; and, on the return of the air on inspiration, are suddenly expanded with a crackling noise.

It is doubtful, however, whether it be possible to distinguish this sound from that made by the presence of tough mucus in the air cells and finer bronchial tubes.

Indeterminate Rattles.—Under this head are included all those rattles commonly called mucous rattles, which are not vesicular or

consonant, and are not accompanied by the amphoric echo. They afford no information as to the state of the parenchyma of the lungs, and therefore indicate merely the presence of fluid in the bronchial tubes.

Amphoric Echo and Metallic Tinkling.—In speaking into an empty earthenware vessel with a dilated body, there is heard, besides the voice, a peculiar humming sound; this represents the amphoric echo of Laennec. There is likewise heard in the vessel, but better in large spaces enclosed with solid walls, such as chambers, and especially vaults, frequently a metallic echo accompanying the voice if somewhat loud. This is the metallic echo or tinkling.

In a tube that is not very wide the amphoric echo is never produced.

In cases where there is a large cavity in the chest whose walls are disposed to reflect sound, and which contains air, a similar sound occurs. As the conditions for its occurrence are, that the cavity be large and contain air, it has only been met with in cases of extensive excavations of the parenchyma of the lung, and in pneumothorax. Laennec believed that a cavity must contain air and fluid to enable it to exhibit these appearances, and his opinion has been universally adopted. But the presence of fluid is quite superfluous, as both a jar and a chamber produce the sound without their containing any; and if an inflated stomach, in which there is no fluid, be spoken against by means of a stethoscope, the amphoric echo and metallic tinkling are heard within it.

Laennec believed further, that the cavern in the lung or the cavity in the pleura must communicate with a bronchial tube to enable the sounds to occur. But only in the rarest cases of pneumothorax does a communication with the bronchia remain, while the amphoric and metallic sounds are an almost constant attendant of this morbid state. In the experiment with the stomach there was no communication with the external air, and this leads us to the true explanation, which seems to be, that the air contained in one of the bronchial tubes consonates with the voice, and produces vibrations within the cavity of the pleura or cavern in the lung, from which it must not be separated by more than a thin layer of parenchyma.

The mechanism of these sounds will be easily understood, if we keep in mind that they are merely the peculiar character given to the sounds of the voice and respiration already described, by their being re-echoed in a space of considerable size filled with air.

The amphoric respiration, or *bourdonnement amphorique*, arises either from the respiratory sound in a large bronchial tube which opens into a cavity, or the re-echoing in the pleura filled with air of the bronchial or consonating respiration in a neighbouring tube.

The metallic tinkling, *tintement metallique*, may arise from bronchophony, from rattles, or from the agitation of fluid produced by coughing, or violent motion, re-echoing in a cavern, or in the pleura when filled with air. Of these by much the most frequent cause are the rattles.—*Edinburgh Med. and Surg. Journal*, July, 1841.

Notes on the Treatment of Chronic Pleurisy, with Effusion, by the late James Hope, M.D.—The following paper must possess a high interest for our readers, when we inform them that it was commenced by Dr. Hope during his last illness, and concluded on his death bed. Unable to complete it as he could have wished, he was compelled to dictate it in the shape of notes, which he finished only four days before his decease. To those who knew Dr. Hope well, this zeal for science and his fellow-creatures will occasion no surprise. It was consistent with the character of the man, who died as he had lived, an accomplished physician and a good man.

The symptoms of chronic pleurisy, with effusion more or less filling one side of the chest, are perfectly well described by systematic writers, as Dr. Law, (*Cyclop. Pract. Med.* p. 395, *a*,) yet there is no class of affections more habitually overlooked by the bulk of the Profession than this, certainly one of the most destructive to life if neglected beyond a certain period. I am glad to notice that Dr. Stokes makes a similar remark. Some fault attaches indeed to the systematic writers alluded to, for their mistaking the state of anæmia, with its quick pulse, for irritative fever, by which they not only mislead themselves but also their readers, as to the nature of the patient's condition, and, consequently, as to the appropriate means of cure. It has resulted from this, that a far too unfavourable impression of the curability of chronic pleurisy with effusion, or empyæma, as it is called after a certain time, has become prevalent. Dr. Law thinks more favourably of the possibility of cure. He with justice, however, excepts tubercular cases, and those in which the patient is not assisted; yet I think that he is mistaken in supposing that a copious evacuation from some other organ may not occasionally prove critical and empty a chest. A case occurred to me in which absorption did not commence so soon as I expected; namely, within a week, when the patient was attacked with hypercatharsis to the amount of sixty watery evacuations in two days. The chest, meanwhile, which was dull within two inches of the left clavicle, and had the heart protruded to the right side of the sternum, had completely emptied itself, and the patient recovered.

Broussais met with only one favourable case out of eighteen. Laennec's view was equally gloomy, and Dr. Townsend's is no less so; Dr. Thomas Davies feels the same so strongly, that he hurries on the operation of paracentesis at a very early period of the disease, a circumstance which is the main cause of the unusual success of the operation in his hands. From this aggregate of unfavourable opinions it results, that, at the present time, there is a prevalent doubt whether the fluid of empyæma is ever absorbed. This fluid, it may be remarked in passing, may be either sero-fibrinous and albuminous, or contain pus in any degree up to its pure condition. This seems to be now a settled question, and I think it ought to be so, as the fluid, in healthy subjects, kills not by its quality, but by suffocating.

I cannot feel surprized at this want of success in the cure of em-

pyæma, when I notice the unsettled, vacillating, inadequate treatment recommended even by those writers who think most favourably of the possibility of a cure.

Dr. Law's treatment comes nearest to that which I have found effectual, but he is too timid in continuing the gentle use of mercury, from fear of its inducing irritative fever and hectic. This supposed irritative fever, however, is, in most cases, nothing more than excitement of anæmia, (a fact of which he does not seem to be at all aware, as even in the convalescent period, he does not even name iron as a remedy), and the hectic is a necessary consequence when the fluid is pus, and this is diffused through the whole circulation by the process of absorption. I have steadily continued the gentle external use of mercury through the most violent hectic, coming on twice a day in tremendous paroxysms; while I have counteracted this by the free use of mineral acids; and by a diet, not only of strong both at luncheon, but of animal food at dinner; the patient's tongue being clean, and his appetite and digestion always good.

Dr. Townsend seems principally to follow Broussais (phlegmasie chronique), and Laennec, neither of whom makes use of mercury, and the former would only venture on a blister as an experiment! He, likewise, falls into their great error of mistaking anæmia for fever, and, therefore, starves the patient at a moment when there is a great demand for animal nutriment in any way in which it can be borne. The treatment of Dr. Thomas Davies is that of calomel and opium, and counter-irritants in the first stage, but he thinks these inefficient in the stage of chronic effusion. He, therefore, as already stated, hurries on the operation of empyæma. The writer on pleurisy in the *Library of Practical Medicine* (vol. iii. p. 124) seems to have but an indifferent opinion of the curability of chronic pleurisy with effusion. After the third week or so, he thinks mercury of little benefit, and that it is even injurious when the hectic stage comes on; but approves of counter-irritants, and follows Dr. Stokes in his approbation of the use of the hydriodate of potass, to act both as an alterative and a diuretic; also of the iodide of iron.

Dr. Stokes, whose writings on pleurisy I had not the pleasure of seeing till long after I commenced my own observations, I find to be far the most successful in his treatment of chronic pleurisy and empyæma. In an excellent chapter, containing a considerable portion of original matter, some, perhaps, a little fanciful, he mentions that he cured twenty cases running by the use of a pint daily of cold solution of Lugol's iodine, and from a quarter to half an ounce of the ointment rubbed into the side. He is, likewise, very favourable to the use of blisters.

I have myself been instrumental in curing five and thirty cases consecutively, during the space of four years, but principally two years and a-half, while I was assistant physician to St. George's Hospital, no cases having been withdrawn, or added from an anterior date, except three; the first was Mr. Garnett, whom I saw about 1833,

who had also fatal ulceration of the bowels; the second, the Rev. Mr. —, whom I saw about 1833; the third, an out-patient of St. George's, whom I found to have tubercular disorganization of the lungs, and whom I, therefore, transferred to Dr. M'Leod, as an in-patient of St. George's. Paracentesis was practised; the tubercles were found; and he died from inextension of the lung; which was bound down to the spine. The remainder of the cases all dated within three months, as well as I could make out by most carefully catechizing the patient respecting the first feeling of pleuritic pain of ailment of any kind. The pain was frequently forgotten, until the patient was perhaps asked whether he had not had a little lumbago, pain the back, &c. Nor is this surprising; for copious effusion very soon relieves pleuritic pain. A very great proportion dated within two months, and from that time down to three weeks or a month. I seldom saw them earlier than a month, as they were either neglected and misunderstood cases amongst the out-patients of St. George's, or private patients whom I was called to see in consultation at a late period of the disease; the complaint of the latter having, with few exceptions, been also overlooked.

The following is a list of the previous duration of the disease in all my private cases, amounting to seventeen; but I lament to say that I cannot at present give the dates of those, eighteen in number, who were out-patients of St. George's, and the notes of whose cases I drafted out of 15,000 notes of cases, which I saw at St. George's (for I took notes of almost all). The notes of these eighteen cases having been separated from the others, I have unfortunately mislaid them. Unless, therefore, I recover them, I must trust to the confidence of the public for the accuracy of the facts. They were all demonstrated, as they occurred, to the students of St. George's.

Coachman of Sir Clifford Constable's, ill a fortnight, but previous bronchitis.

Miss Caldow, ill from two to three weeks.

Robert Watts, ill eighteen days.

Mr. Smith, ill three weeks.

Mr. Tapson, ill a month.

Patrick Millerick, ill a month.

Mr. Eade, ill five weeks.

Mr. Garnett, ill six weeks.

Henry Wade, ill two months.

Mr. Downing, ill two months.

Aldersgate-street student, under Mr. —, for supposed phthisis; had supposed lumbago nine weeks before.

Miss Miller, disease of ten weeks' standing for two months.

The Rev. Mr. Barter, two months and a half, but previous pneumonia.

Mr. Hamilton, ill three months.

Eliza Grey, ill three months.

Mr. Morgan, stitch in back three months before. Ill ever since.

The Rev. Mr. ——— ? ill upwards of three months.

As I have not leisure to continue this paper at present, I subjoin the following memoranda of how I shall proceed if time permit.*

The private cases, being in great detail, and in general features greatly resembling each other, it would be useless to give the whole in full. Therefore pick out a few, which give at length as general types; for instance, Miss Miller, Mr. Morgan, and Sir Clifford Constable's coachman; the remainder insert in an abbreviated form, together with such of the out-patients of St. George's as I can recall to memory, though I have lost the notes of their cases. Show that I used mercury in all degrees of intensity, so as to ascertain what quantity was the most effectual, but, at the same time, least injurious. Show that I always used opium, in full proportion with the mercury, and that I used the milder and the external forms when the others could not be borne, thus taking *especial* care to protect the mucous membranes. Add that I found prompt and free salivation by calomel and opium, and the use of one or two drachms of ointment on each groin and axilla night and morning for forty-eight hours, (in conjunction with the other remedies presently to be specified), produce the most rapid and satisfactory effects of absorption, in cases where the dyspnœa and faintness seemed to me most urgent and dangerous. It was quite common, and, in fact, occurred in the majority of cases, that the fluid descended one-third, and still oftener one-half, down the chest, within the space of forty-eight to sixty hours, carrying with it the extreme dyspnœa and faintness, to the great relief of the patient.

Say that blisters were used from the first, and that the following became my settled plan of managing them. One blister six inches long, and three and a half broad, exclusive of margin, was placed longitudinally over, and a little to the outside of the angles of the ribs, leaving space for another of similar size between the first and the spine. Great care was taken not to remove the cuticle, (one means of which was to cover the surface of the blister with silver paper,) as this forms by far the quickest healing plaster; but after about forty-eight hours, during which the running was absorbed by dry napkins, carefully prevented from adhering, it became requisite to cover the whole with the mildest soap-plaster, spread on soft calico, to prevent the cuticle from being accidentally abraded. In this way all irritation promptly subsided, that is, in the course of from two to three days, and the patient was ready for the second blister, which was placed between the first and the spine. It was similarly treated; and, at an equal interval, a third was placed in front of the original one; that is, rather forward in the axilla. When pain indicated the possibility of a pleuritic stitch in any part of the side, it is needless to say that the first blister was placed over that.—Say that diuretics are

* It will be observed that, from this point, the form of private notes is adopted.

conjoined : viz., Squill ; Sp. Æth. Nit. ; juniper, iodide of potassium, and, where there is no irritation of the mucous membrane, the various other preparations of potass. Digitalis, by creating faintness, is apt to confuse the symptoms ; I do not, therefore, use it till later. Where all these remedies had failed for two or three days, and dyspnœa continued as urgent as ever, I have occasionally used a powerful hydragogue, as half a grain to a grain of elaterium, combined with calomel and capsicum to prevent nausea ; or the Pulv. Jalap. Comp. 3j. ; so as to produce ten or twelve copious watery evacuations per day, stimulants being at hand in case of any sinking tendency. The effect of this has on several occasions been perfectly satisfactory, absorption in the chest having now made rapid progress. I derived this idea from a case already alluded to, in which a patient had an accidental hypercatharsis to the amount of sixty stools in two days, which emptied the chest in the same space of time. The patient is better in bed, both because it favours gentle transpiration and obviates faintness.

Remind that, hitherto, I have been treating a case in which the dyspnœa seemed imminently dangerous, and the most vigorous use of remedies consequently indispensable ; but now explain that inconvenience sometimes resulted from hypersalivation ; for, notwithstanding an immediate suspension of the mercury either on the first appearance of tenderness of the gums, or of amelioration of the symptoms, especially the dyspnœa and obvious commencement of absorption, untoward salivation would occasionally occur and greatly retard the convalescence.—Explain that, on several times observing this, and having reason to believe that the patient could bear the dyspnœa with safety for some hours longer, provided he were prevented from rising, which creates faintness, (case of Mr. Smith, barrister,) I used more moderate quantities of mercury, being content to affect the gums within three or four days. In this way the action of the remedy was easily controlled, either by omitting the mercury for two or three days if its action threatened to be considerable, or by merely diminishing it according to the evidence of the mouth and of the symptoms. I found, however, that it did not answer to suspend it altogether, but that a continuation of it daily in a mild form, as a blue-pill night and morning, or at night only, for the purpose of maintaining the first impression for a period of two or three weeks, or, in short, until all the disagreeable symptoms had disappeared, was attended with far better success.—Explain, further, that the great acceleration of pulse, which rises commonly to 120 or 130, and in young persons even to 150 or 160, and which is attended with what the patient calls “ internal fever,” thirst, craving for cold drinks, and dryness and heat of skin, is not necessarily a result of fever, but it is necessarily a result of anæmia, occasioned by the deficiency of oxygenation from the total incapacity of one lung at least. Here was the error made by Broussais, who supposed this to be fever, and put his patient on the lowest diet. On the contrary, acting on the opposite principle, I always supply my

patients with at least one or two pints of concentrated beef tea, or plain ox-tail soup; and, if the state of the tongue and the alimentary canal fully authorizes it, I permit them tender old mutton or beef for dinner. On this treatment the pulse and "internal fever" rapidly fall in proportion as the anæmia disappears.

Next proceed to those cases in which hectic is established, resulting, for the most part, I should imagine, from the fluids being of a puriform character; for, after a month or six weeks, and sometimes much earlier, if the inflammation have been very intense, it assumes this character.—Allude to the opinion pretty prevalent, that mercury is injurious in such cases, and say that I have not found it so, but that its use was still indispensable; for I have noticed that where it has been omitted, contrary to my wishes and instructions, a recurrence of the effusion has taken place, notwithstanding the use of mineral acids and the various other remedies usually considered available against hectic; whereas, on resuming mercury with opium, and giving the mineral acids for hectic, I have been enabled to restore matters to their former condition, though not without an extra shake to the patient. One of the best instances of this was presented by Sir Clifford Constable's coachman.—Dwell on this case; say that, after acute pleurisy of three weeks I saw him, and the chest was emptied in a week, but the mercury ordered to be continued. This, on my taking my leave, was omitted; and, as he seemed weak, (*viz.*, merely from anæmia), he was ordered ammonia, brandy, and other stimulants. In ten days, when I was again called in, his chest had refilled, and he now had a most violent hectic paroxysm at eleven o'clock, A.M., and again at eleven, P.M. Each of these thoroughly drenched him, and during the extreme heat the pulse would rise to 150, being also barely perceptible. In this I saw nothing but a large quantity of pus in the circulation, which nature was endeavouring to throw off in her usual manner. I believed, in short, that the fluid in the chest was wholly purulent. I, therefore, continued the mercury and blisters in moderation, and made free use of the mineral acids, which, fortunately, he bore perfectly well. During the brief intervals of the hectic paroxysms, he exhibited that marked relief which we habitually see, and had always a keen appetite for his meals. He accordingly took as much mutton chop, beefsteak, or roast or boiled mutton, as he was inclined to take. Under this treatment the chest was again emptied within the space of ten days; the hectic symptoms slowly gave way during a period of a month or six weeks, and I dismissed him convalescent to go to the country. I may add, however, that when the hectic was nearly gone, sulphate of iron was added to his sulphuric acid, in order to cooperate with the animal food in removing all remains of anæmia.

Dwell likewise on the case of Mr. Morgan, *æt.* about 20, who was not only highly hectic, but had also slight gastro-enteritis. I continued the gentle external use of mercury, allayed the irritation of the mucous membrane by mild antiphlogistic means, &c., but allowed

him plain veal and chicken broth, then beef tea and mutton broth, in such quantities as I found he could bear. The gastro-enteritis having been thus pretty well subdued, he became tolerant of the mineral acids and sulphate of iron, well guarded with laudanum. This youth rendered the progress of absorption more rapid than in the preceding case, for the fluid all disappeared within ten days, with entire relief to his dyspnœa; and so great a restoration resulted from the new supply of oxygen and removal of anæmia, that a week afterwards he came in a cab from the city to the west end to call upon me.

Auscultators should be careful not to throw away chances by neglecting to use the stethoscope. In one instance, an accomplished physician, having examined the top of the lung and found it dull, with the other usual signs of induration, without following up his examination down the whole side, took the case for phthisis, and ordered the patient to the southern coast. A common friend having mimicked to me the mode of breathing of the patient, I declared at once, (for his imitations were most graphic), that such was not the dyspnœa of phthisis; and as I knew him not to be a phthisical subject, and to have been in robust health two months before, I entreated of our friend to go down to the patient in the country the same afternoon, and not to let him stir (for he was to start two days after) without a consultation of physicians. I declined going myself, as having suggested the measure. Answer was returned, that if I would not go, he would see no one else, as he had originally intended to have consulted me. I saw him and found—what I was before sure of, namely, that the whole side was full of fluid, indicated by the usual symptoms, including anæmia and the physical signs. I flattered him that we should empty the chest within a week or ten days, and that he would be convalescent, *Deo volente*, in a month. So it happened, though mercury could only be borne externally, and that with great reluctance on the part of the patient. His convalescence was somewhat protracted in consequence of the irritable state of the mucous membranes, rendering them incapable of bearing the animal diet, and ferruginous preparations suitable for the removal of the anæmia. He had flying pains principally below the region of the heart, but these ceased under the use of plasters, especially belladonna; and he has enjoyed perfect health for the past year.

In the great majority of cases an attrition murmur, (always most perceptible along the line of the margin of the lungs from the heart, curling backwards to the bottom of the lower lobe; in other words, below the axilla), was found to appear as the fluid disappeared by absorption. I have noticed that the longer this attrition murmur lasts, the better; as the adhesions are more apt to be of a loose and elongated character, which I infer from the patient's recovering complete resonance on percussion, and complete restoration of respiratory murmur sooner than in other cases where the attrition murmur lasts but a few days, in consequence, probably, of the adhesions becoming universal and close. Whenever the latter is the case, the patient may

lay his account to being more or less delicate for a year and a half or so, because the lung requires fully this time slowly to stretch the adhesions, to reacquire her natural respiratory murmur ; or, if this should never occur, for the patient to gain a compensation by hypertrophy of the opposite lung, which, meanwhile, has constantly been doing vicarious duty ; namely, breathing in an exaggerated or puerile manner. These exquisite arrangements of Providence cannot be sufficiently admired. The more we look into them, the more complete we find them.

The lung sometimes remains permanently condensed from the thickness and utter inexpansibility of the side ; and dilatation of the bronchi may result from this cause, of which I have met with and detected four or more instances. Condensation of this kind is less frequently attended with falling in of the side than in cases of pleurisy ; for the opposite lung slowly becomes hypertrophous, and fills up the vacant space, advancing, however, into the opposite side of the chest, and carrying the heart with it in either direction. Thus, in Peter Parker, an out-patient of St. George's, the heart is protruded almost into the right axilla, and the aorta pulsates an inch to the right of the sternum. Lung condensed by adhesion is rarely healthy. There is almost invariably a slow, wearing, chronic bronchitis, which harasses and reduces the patient, and generally curtails his existence. Parker had had his cough for ten years, and he was an emaciated and decrepid subject.

Here introduce a number of detached observations, more or less original, on various subjects. Thus, for eight or ten years, I have been in the habit of asking the question of all respectable patients of robust constitutions, who had been attacked with pleurisy, peripneumony, acute rheumatism, whether they were in the habit of wearing flannel or not ; to which they generally answered in the negative ; the common reason assigned being, that they were so much exposed, that they could not venture to pamper themselves. I recently put the same question to a London physician, and he gave the same answer with a smile, and " my dear friend, it is impossible," &c. He was attacked with rigors the same night, and had a severe rheumatic fever. I do not quote the poorer classes, for they almost universally are deterred from wearing flannel by the expense ; and it is notorious that they are subject to acute inflammations of all kinds, in a much greater proportion than the higher classes. Flannel is also highly beneficial to chronic affections of the mucous membrane of the lungs.

Pleurisy is, after rheumatic fever, one of the most frequent causes of pericarditis—not endocarditis, at first, the inflammation being propagated to the pericardium by contiguity of tissue ; if endocarditis supervene, it is by propagation from the peri- to the endocardium.

Diaphragmatic pleurisy may occasion agonizing pain by interfering with the action of so great a muscle as the diaphragm. It is in such cases that we occasionally see the patient put on what is

called the sardonic grin, a species of sympathetic spasm dependent on the excito-motory system and nerves.

In some convenient part of the paper, give a brief and compact, but very clear synopsis of the signs of a chest full of fluid. For I repeat that, well as these are known to systematic writers, they are singularly forgotten and overlooked by practitioners. They ought, therefore, to be pushed prominently forward on every occasion. Refer, likewise, to a synopsis of the signs of anæmia in the essay on that subject; by which the practitioner will readily distinguish this condition from that of fever, for which it has been mistaken by Broussais and others.

Wind up by a general statement, that, if Dr. Stokes has cured twenty cases running by Mons. Lugol's solution and ointment of iodine, together with blisters and other means, and I have cured thirty-three consecutive cases by other means; fifty-three cases cured successively, without selection, afford a strong presumption that all really *curable* cases are curable without paracentesis. It remains to be proved by experience whether iodine or mercury be the less injurious to the constitution. I have myself the most favourable opinion of the harmlessness of the iodide of potassium when protected by starch—that is, a little bread with each dose; for I made the experiment of giving eight-grain doses against three-grain doses, in two hundred cases, for the purpose of ascertaining which dose was the most efficacious. The larger, both being given thrice a day, succeeded incomparably better, and I now rarely give the smaller.

I have met with seven or eight cases of circumscribed pleurisy, and whenever a chronic pleurisy becomes very protracted, I am not sorry to see a purulo-sanguineous discharge take place periodically, as it generally does, into the bronchial tubes; for, in this case, a slow process of healing generally occurs, and the patient, in a fair proportion of cases, recovers. I have recently discharged one, Henry Wade, who appeared to me to have had a chronic pleurisy engrafted on a previous circumscribed or sacculated one. The history of the chronic one is developed in my journal in the utmost detail; but the patient also informed me that some months before he had been under the care of a physician in Norfolk, who had treated him for six months previously for discharge of half a pint of pus mixed with blood, expectorated once a day from the bronchial passages. After this time he sent him to London to consult me, and I found him with a very circumscribed empyæma that he might have had, obscured by general empyæma. This having been removed, the original circumscribed empyæma pointed at the chest, and discharged by two or three apertures. When the discharge was free by the apertures, it was correspondingly diminished by the bronchial tubes. Both slowly decreased. The circumscribed empyæma seemed to descend very low in the splenic region, and after nine months of hospital attendance as an in-patient, he was dismissed without discharge, with slight cough and in general good

health, his weight being at least twelve stone, though a moderate-sized man.

I discharged a patient from the Marylebone Infirmary, cured six times of circumscribed empyæma above the left mamma, and opening into the bronchi. At the end of six months he was completely well.

In another, in the Marylebone Infirmary, the whole length of a probe could be passed directly into the chest. He recovered, but with much collapse of one side.

A third in the Marylebone Infirmary, a boy of eighteen, had effusion for six months. My colleagues, in consultation, had given their opinion that he was tubercular. The operation of paracentesis, therefore, was negatived. The opposite lung was soon after attacked with peripneumony, and he died, when the exemption from tubercles was proved. I did not then understand an efficient treatment for fluid in the chest; and was therefore an advocate for the early operation on the principle of the late Dr. Thomas Davies, of Broad-street. I had much regret, therefore, respecting this case, that the operation had not been performed. One feature was remarkable. Andral, Broussais, and others, recommend that patients in chronic pleuritis should be kept on light diet. This youth ate twelve ounces of dressed meat at dinner; eight ounces at breakfast, with two eggs; tea and milk ad libitum; sixteen ounces of bread daily.

Numerous similar cases show that nature's mode of performing the operation is incomparably more safe than paracentesis.—*Med. Chir. Rev.* July, 1841.

*Note relative to a Case of strangulated Inguinal Hernia, reduced by the sub-cutaneous Section, communicated to the Academy of Sciences, on the 2nd of August, 1841, by Jules Guerin, M.D.—*When I first published my experience on the subject of sub-cutaneous wounds, I specified the operation of strangulated hernia as among the applications of the new method. But whether from not understanding the advantages of the operation, or the difficulties attending on its execution, no one attempted it. By chance an opportunity of realizing the application of the method has occurred to me, and the result has been completely successful.

Congenital Epiploic Hernia, strangulated for three Days. Frequent but unavailing Attempts of the Taxis. Setting in of dangerous Symptoms. Sub-cutaneous Operation. Cure.—Ferré, aged eighteen years and a-half, presented an inguinal hernia of the right side, presenting the characters of congenital hernia, but which, by his own account, had only appeared during the last year.

When about six years old, a tumour ascending to the inguinal canal formed in the right tunica vaginalis. The patient was seen by M. Tinquier, who recognized an hydrocele; but stated, that it would undergo a spontaneous cure. The fluid was gradually absorbed; but the tunica vaginalis and tissues of the cord remained

tumefied. The cord, particularly in the portion lodged in the canal, appeared to be the seat of small collections of fluid, probably vesicular hydrocele. In August, 1840, the patient was carrying a heavy load, when he suddenly perceived that a small tumour appeared in the groin, descending on exertion, but subsiding spontaneously when he lay down. He adopted no treatment, and in the following year he came to Paris; the tumour then being about the size of a nut, but always returning with facility. In the month of July, in consequence of some efforts, it suddenly became the size of a hen's egg. On the 10th, after having walked a good deal, he was attacked with sharp pains in the tumour. He then consulted Doctor Barraud, of Passy, who recognized a strangulated hernia. Many attempts were made to reduce it, but in vain, and I was consulted on the 12th. A hard tumour of the size of the fist existed in the right groin, descending to the middle of the testicle. It was evidently contained in the tunics of the cord, and was prolonged above into a pedicle, hard and of the size of the finger, which could be followed into the inguinal canal, the anterior orifice of which it exactly filled. The tumour was painful, and seemed formed by the epiploon. The integuments were red, swelled, and tender. There was no vomiting, cholic, or hiccup. All my efforts, both by the use of lavements, baths, and the taxis, having failed, I determined on the evening of the 12th to operate by the sub-cutaneous method.

The patient was placed on a bed, the pelvis slightly raised, and the thighs separated and semi-flexed on the pelvis. The parts being shaved, and the direction of the vaginal canal accurately ascertained, I made a transverse fold of the skin of three or four centimetres in length. It was taken from the root of the scrotum and carried before the inguinal ring, then with a very small bistoury, four millimetres broad, I made a puncture along the upper portion of the pedicle. The instrument penetrated to the centre of the ring. Into this opening I passed a grooved director, which I gradually passed in the direction of the canal, always along the superior and anterior face of the pedicle. After many attempts I succeeded in introducing it into the canal to the depth of seven centimetres. I then gave it to an assistant, who by lowering the handle caused the other end to become elevated. I then made a second fold, and a second puncture a little above the first, and by it introduced a blunt pointed convex myotome; the blade of which, three centimetres long and three millimetres wide, was supported by the handle five centimetres long. The blade entering the groove of the sound, the edge turned upwards and outwards, I divided by little and little the anterior wall of the canal, pressing with the thumb and index finger on the part to be divided, so as to compress and depress between my fingers the blade and the corresponding portion of the tissues. Thus I arrived to the middle of the deep orifice of the canal. I then attempted the reduction; but a portion of the exterior or anterior ring had escaped the instrument. I then introduced a small slightly concave myotome, "*boutonné*," which passed

easily between the pedicle and ring. The reduction now appeared easy, but the portions of the tumour which had disappeared again appeared in the scrotum as soon as the compression was omitted. I was then convinced that the reduction was only apparent, and that the parts only lodged in the cavity formed by the branch of the abdominal muscles, and that the true obstacle was furnished by the deep-seated ring. I re-introduced the myotome, and divided the ring in two points directly from below upwards, and transversely from within outwards. The hernia was then reduced with the greatest facility. I then expelled the air and blood in the wound, closed the little opening by means of adhesive plaster, and applied a compress and dressings. On the eighth day all was well.—*Gazette Medicale*, August 14, 1841.

New Method of covering Pills.—The plan proposed by M. Garot for this purpose appears to be very simple, and is said to be very effectual in most instances. It consists in dipping the pills for a moment in a solution of gelatine, and allowing this varnish to dry on their surface. The only objection to this method is, that if the pill be soft, or if it contain any oleaginous or oleo-resinous matter, as copaiba balsam, the gelatine, by contracting during desiccation firmly around the surface, is apt to squeeze this matter out. This inconvenience, however, is obviated by adding a little gum and sugar to the gelatine that is used. The following is a good mixture for the purpose : take of dry gelatine one part, pate de jujubes seven parts, and of water as much as is sufficient. These materials should be slowly dissolved in a sandbath, so that the mixture may acquire the consistence of syrup. The pills are then picked up with a long needle and dipped in a solution. If they contain any oily or resinous matter, it will be well to give them a second coating afterwards when they have become quite dry. The little aperture left by the needle should be afterwards closed by touching it with the solution. The mixture which we have recommended, dries almost as quickly as the pure gelatine, and, besides contracting less firmly, it has a pleasant taste in the mouth.—*Med. Chir. Review*, July, 1841.

Pills of Copaiba, Turpentine, and Cubebs.—Doctor Puche, of the Hôpital du Midi, recommends the following formula for pills, which he has found to be very efficacious in the treatment of gonorrhœa :—Dissolve in a sand-bath some dried (*cuite*) turpentine in an equal quantity of copaiba balsam, and add to the solution as much cubebs powder as may be sufficient to form a consistent mass. The pills or boluses may then be covered with a double coating of the gelatinous mixture mentioned in the preceding article.—*Ibid.*

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PART I.
ORIGINAL COMMUNICATIONS.

ART. VI.—*Treatise on the Anatomical Varieties of Congenital Club-Foot, considered in Relation to Convulsive Muscular Retraction.* By Dr. JULES GUERIN, Directeur de l'Institut Orthopedique de la Muette, Chargé de Service Special des Difformités à l'Hôpital des Enfants Malades, Paris.

[From the French by S. LENOX L. BIGGER, M.B. M.R.C.S.I., Surgeon to the Adelaide Hospital, &c.]

I HAVE sought to establish in my treatise on the general etiology of congenital club-foot,* that this deformity, is the result of convulsive muscular retraction. I have assumed as a consequence of this principle, that the different anatomical varieties of club-foot are the result and visible proofs of muscular retraction, occurring in such and such muscles, and consequently the varied manifestations of this single cause. This treatise shall be devoted to the development and demonstration of this proposition.

Four anatomical varieties of congenital club-foot have been described up to the present period, viz. : the pes equinus, varus,

* Published in the last No. of this Journal.

valgus, and talus. These four primitive forms are besides susceptible of combination with one another, and of producing by their combination secondary varieties and associations. If the etiological theory of muscular retraction be true, it ought to account for the formation, not only of each of these varieties of club-foot considered in general, but moreover, of the various elements of which each of them is composed, and of the characters peculiar to it; besides this, it ought to throw light on the other peculiarities and accidents of form which have not been heretofore recognized, showing them to arise spontaneously from a rigorously founded etiology, exercising itself beyond the domain of empirical observation. The morbid forms are really better determined by an intimate acquaintance with the causes, and these again are better established by a rigorous determination of the forms.

I. PES EQUINUS.

The form characterizing pes equinus consists in a certain degree of permanent extension of the foot on the leg without retroduction, adduction, or abnormal abduction, the patient supporting his weight on the extremity of the forepart of the foot. The physiological analysis of the movement of the foot, the examination of this variety of club-foot in its elements, progress, different degrees, diverse transformations, and proper anatomical characters, points out equally that it is the result of muscular retraction. I can also assert, that the same method of verification can be applied to all varieties of club-foot; their common origin is found in the physiological analysis of the movements of the foot, of which they are but the permanent forms, in the examination of each of them, in the constituent elements, in different stages and degrees of its development, and in the consideration of the proximate characters of retracted muscles.

Well, what occurs in the most simple form of equine club-foot? extension of the foot on the leg: that is to say, the per-

manent state of that motion in which the muscles of the calf contract and shorten themselves, and raise the calcis, so as to draw it as near as possible to their superior point of insertion. This is evidently the expression of a physiological movement caused by permanent shortening of the muscles, producing precisely the same appearance as when temporarily shortened. This we set down as our first fact. But *pes equinus* is seldom simple, that is to say, confined simply to extension of the foot upon the leg. It is almost always compound, that is to say, including other elements common to it, with the greater number of the varieties of the same deformity, the collection of which ought to be explained by the same etiology. Thus I have pointed out among the general characters of club-foot the shortening, broadening and vaulting of the foot; these characters are no where so well marked as in compound *pes equinus*, so that in some cases they exist when the retraction in the muscles of the calf is hardly, if at all apparent. I have given cases of double club-foot, in which the first and principal element of equinism was wanting on one side, although the shortening, thickening, and arching of the foot, and the turning back and distancing of the toes were as marked as in the other foot, which presented, besides the reunion of these characters, a very marked elevation of the heel. Let us follow the different elements of the *pes equinus* in their different stages and degrees of development.

In the first stage of compound *pes equinus*, there is only at first a slight defect in the length of the muscles forming the *tendo Achillis*. When at rest, the foot forms a right angle with the leg and the heel touches the ground; but the flexion of the foot on the leg can go no farther. The impossibility of this flexion cramps the gait, and renders it difficult; the patient cannot turn on the heel without losing his balance and falling backward. Even at this degree we can recognize the retraction of the *solei* and *gastrocnemii* muscles, because being stretched, howsoever great may be the effort made, they will not permit

any movement of flexion beyond a right angle. This first degree of deformity cannot be attributed to the position of the foetus in the womb, since the foot is articulated at a right angle with the leg, that is to say, it preserves its natural relations. The tension of the muscles of the calf, and the obstacles which they oppose to every motion of flexion of the foot on the leg, point out the real cause of the deformity. In this stage, also, the pes equinus is generally shorter, vaulted, and howsoever young may be the patient, there are two callosities to be seen on the plantar aspect, one corresponding to the heel, the other to the middle part of the fore-foot, each resulting from the habitual pressure of the prominent parts against the ground. Whence do these different circumstances arise? First, the elevation or rather the fixedness of the heel, arises from a certain degree of retraction of the muscles forming the tendo Achillis; secondly, from a certain degree of retraction of the muscles, which pass to the extremity of the foot on its plantar aspect, such as the long and short common flexors of the toes, the flexor pollicis longus, perhaps some of the muscoli accessorii; this accounts for the arching of the foot: for the shortening, there are the dorsal muscles of the foot, the common extensors of the toes, the extensor proprius pollicis. The longitudinal axis of the foot held between these two forces of dorsal and plantar muscles, of which it is the result, cannot elongate itself—whence comes the arching and shortening. Attentive examination of the foot in the living, and dissection in the dead, materially establish this fact. In the living we observe, in the greater number of cases, that the toes are at the same time extended and fixed on the metatarsus; at first elevated on the metatarsal bones, then flexed in such a manner that their free extremities hardly pass the metatarsus, which projects forward almost into the same vertical plane as the latter. I possess examples in which the metatarsus projected even beyond the free extremity of the toes. The cause of this disposition is even better appreciated when we seek to elongate the toes, for we immediately perceive the tendons of

the extensors to project under the skin ; this disposition cannot be attributed to the exercise of walking on the extremity of the foot, for we observe it in the foetus, and in subjects which can still maintain the foot at a right angle on the leg, and can consequently apply its plantar surface to the ground. It happens besides, as already said, that the retraction does not extend uniformly to all the mnscles, some are more retracted, some less, whilst others of the same class are not retracted at all ; this variety in the degree and result of the action of the cause does not prevent the essential character from appearing less plainly ; moreover, we must say, that the retraction may occupy unequally, simultaneously, or separately all the muscles of the foot ; whence it happens, that there are as many modifications, if not varieties of deformity, as there are combinations in the applications of its cause. In limiting myself to write the history of the admitted varieties of club-foot, I shall not omit to describe the different accidents of form which compose the accompaniments of the principal character of the variety. Thus under this head there are, as I have said before, equine club-feet, with retraction of the muscles of the calf only ; others with retraction of the flexors and extensors ; others with retraction of all the muscles of the foot, but in such degree that the dominant form and characteristic of equinism elevation of the heel continues to be the most apparent symptom of the deformity, in the midst of the different combinations of projections and depressions answering to the different muscles and tendons subjected to muscular retraction.

In proportion to the development of this variety of club-foot, the same elements follow in a parallel manner the same progress. On one side, there is shortening of the muscles of the calf, which increases continually under the influence of the consecutive arrest of development, and which proceeds still elevating the heel more and more ; on the other side, there are the extensor and flexor muscles of the toes, which more and more drag back the toes, and increase the excavation of the plantar surface to such a degree sometimes, as to fold the foot completely on itself

by drawing the forepart of the foot completely under the heel. This forms the most extreme degree of pes equinus. Some persons have wished to make of this degree a new variety of club-foot, because they do not understand the connexion which exists between these two stages of the same pathological truth, and because they were not aware that the consecutive arrest of development of retracted muscles is always adding its results to the first effects of immediate retraction. The drawing of the anterior part of the foot under the heel, so that the patient walks on the dorsal surface of the tarsus, is the product of these two successive elements of the same cause, and of the excess of their action on the extensors of the foot, and the flexors of the toes. In a word it is the extreme degree of shortening of the muscles, which in a minor degree of action causes the vaulting of the foot; the dragging back of the anterior part of the foot is but the exaggeration of this vaulting or arching of the foot, i. e. a primitive character of pes equinus. This succession of degrees of the same variety is constant; the patients who have been affected with this posterior club-foot, had previously been affected with the ordinary club-foot, and I have been able in some cases to follow the direct transit of club-foot (equine) in excess into posterior club-foot. This transformation cannot be attributed to walking, or to the weight of the body, although to speak truly, its development is in some cases hastened by their influence; the real sufficing cause of posterior pes equinus is the retraction of the long and short flexors of the toes. I have been enabled to have direct proof of this from having observed it in the new-born infant. The shortening and the broadening of the foot do not always increase in the same proportion. These characters, in fact, result from an operation less sensible, less exterior, and less active, although evidently intimately combined with the same influences. We may say also that the muscles whose retraction prevents the development of the foot in length, are themselves susceptible of undergoing all the shades, modes, and degrees of retraction, from simple shortening without arrest

of development or manifest paralysis, to extreme shortening, with arrest of development and proportional paralysis. Is it necessary to show that thickening of the foot is a natural consequence of its being shortened and arched? The parts which are obstructed, and, as it were, bridled in their longitudinal development by muscular obstacles, give to the transverse diameter those elements which they cannot add to the longitudinal. There is in this an instance of the law of balance, which acts in much more important and general facts, of which it is scarcely necessary to recall the existence. The inspection of the muscles of the leg and foot in the different degrees of *pes equinus*, adds new proofs to those already adduced. From the first stage, the calf is smaller, shorter, and placed higher than in the ordinary condition. These peculiarities are particularly remarkable when the patient is affected with club-foot, only on one side. At the same period we can already feel the edges of the *gastrocnemii* and *solei* muscles stretched like hard resisting arrasses, and showing the transition of the muscle into the fibrous state. These characters are so much the more manifest according as they are observed in the more advanced degrees of the deformity, where the heel does not touch the ground up to the time when the foot is entirely confounded in the axis of the limb. Then it becomes impossible to bring back the foot to a right angle with the leg; the calf becomes more and more reduced, flattened, harder and harder, and more elevated, although the entire fleshy elevation has not yet entirely disappeared. The fibrous hardness of its borders, and even of the whole muscles, denotes in certain cases the existence of an almost complete fibrous transformation, arising, as I have shown, from an old and continued tension. This fact of deformity, shortening and fibrous transformation of the calf, on which I have already insisted in my preceding treatise, is too significant to need commentary. It is enough to remark, that in retraction it is the fleshy part which becomes shorter, whilst the tendonous portion

does not participate except in consecutive shortening of the arrest of development ; besides, are not the retraction of the calf, its being drawn up, its shortness and hardness at all times, and at all stages of club-foot, permanent evidences of primitive muscular retraction ? This induction, derived evidently from the simple inspection of external appearances in the living, is more easily proved from the state of the tissues after death. I shall give in another work, a greater number of anatomical observations made on monstrosities, foetuses, and adults having club-foot in various degrees ; the result from these observations is, that even in the foetus at the age of five months, the muscles which are the seat of marked retraction, exhibit more or less the characters of fibrous transformation. I have spoken specially of the muscles of the calf, because they are the only ones which can be well appreciated in the living, because they are more exposed to strong traction resulting from the weight of the body on the foot, and are consequently more liable to the conditions of the fibrous transformation. I have always seen in extreme cases this transformation manifested in the generality of the muscles, which play a part amongst the different elements of *pes equinus*.

Having before us this analysis of each element, each stage, and each degree of *pes equinus*, it is impossible to mistake the results of retraction, and of the consecutive arrest of development of the muscles.

We shall now apply the same observation to the other varieties of club-foot.

II. PES VARUS.

The essential characteristic of *pes varus* is the overturning of the foot upon its external surface. We may add directly, that this variety is never simple, and that it is allied in a great majority of cases to a certain degree of equinism. Two sub-varieties result from this alliance ; the equine varus, and varus equinus, (*l'équin varus, et le varus equin,*) according as the form of varus or equinus prevails.

There are then three principal forms of the varus club-foot, varus properly so called, equine varus, and varus equinus.

1. *Varus Simplex*.—Varus properly so called is rare ; I have only observed seven cases in 400 of club-foot. It consists in the overturning of the foot on its external aspect, the plantar surface becoming more or less vertical, and looking more or less internally. This simple form is evidently the permanent representation of a regular motion of the foot, and the result of retraction of the muscles which execute this movement in the physiological state. These muscles are, first, the tibialis anticus, and posticus ; second, the gastrocnemii and flexors of the toes ; any one can assure himself of the justice of these indications, by applying his finger in the course of the tibial muscle, and on the Achilles tendon, whilst the foot is turned upon its external surface. This observation might suffice, but the physiological point which serves as its basis, and which ought to furnish numerous data to the different varieties of varus not having been sufficiently explained hitherto, I shall now dwell a moment on its consideration.

I assert that the turning of the foot on its external aspect, results from the contraction of the anterior and posterior tibial muscles, the muscles of the calf, and the flexors of the toes ; this is established at once by the disposition and direction of the articular surfaces, by the insertion of the muscles, and the direction of their action during the motion of which we speak.

Relative to the articular surfaces it is requisite to note separately the relations of the anterior part of the foot with the astragalus by means of the os scaphoides, with the calcis by means of the os cuboides, and also that of the posterior part of the foot or calcaneum with the astragalus.

Scarpa, following the example of Wenzel, has demonstrated, that in turning the foot on its external surface in this form of club foot, the astragalus does not participate in the inclination of the foot, but remains in its normal position in relation to the malleoli. The truth of this circumstance in a great number of

cases mistaken up to that period, has caused this illustrious anatomist, and all those who have described club-foot after him, to fall into another error. Thus it is not correct to say, that the astragalus does not suffer any displacement, independent of the real turning which it sometimes undergoes, contrary to what Scarpa and all those who have followed him have said; the astragalus undergoes another very remarkable displacement, which consists in a motion of rotation on its vertical axis, by virtue of which its internal surface has a tendency to look forward, and its external surface backward. As it is held locked between the two malleoli, it draws them with it, and causes them to undergo the same displacement, in such a manner that the internal malleolus has a tendency forward, and the external backward. Scarpa saw this displacement of the malleoli, but he only noted it as an appearance resulting from the flexion of the anterior part of the foot inwards. Besides, this displacement is a reality, the existence of which shall be easily established; and what causes it to be mistaken is, that at the same time that the astragalus obeys the motion of rotation which we have mentioned, the scaphoid suffers another in the inverse direction. Whatever it may be, I only wish to note for the moment the relations and directions of the articular surfaces engaged in the twisting of the anterior part of the foot, with the circumstance of the rotation of the astragalus, of which I am about to speak.

The posterior surface of the os scaphoides is circularly excavated to receive the head of the astragalus: these two bones can therefore move upon one another with the greatest facility. But the forepart of the foot is also united to the calcis by means of the os cuboides, and the calceo-cuboidal articular surfaces do not present the appearances of a head received into a cavity, but of two almost plane surfaces in their whole extent, having from within outwards a projection and alternate corresponding depression, which permits of a sliding motion from above downwards and a little obliquity from without inwards;

that is to say, following the circumference of the circle described by the rotation of the os scaphoides on the head of the astragalus. Any one can assure himself of the exactitude of this observation, by the facility with which motions of the anterior part of the foot are produced in this direction on the dead body.

The articular surfaces between the astragalus and calcis present conditions so much more important to note, as they appear to have been hitherto very little remarked.

At first, the articulating surfaces of the calcaneum are neither anterior nor posterior, neither internal nor external in regard to one another, as has been stated by some; but in an intermediate direction oblique from behind forward and from without inwards. The postero-external facette presents a convex surface from without inwards, and from before backwards, and the antero-internal facette a concave surface in the same direction. These two facettes are separated by a broad groove, which gives attachment to ligamentous fasciculi and articular capsules. The corresponding facettes of the astragalus are alternately concave and convex in the same direction. The movements which these surfaces can perform on one another are not and cannot be sliding motions from before backwards, or laterally, as many anatomists following Camper have stated. The motions of these two bones on one another are wonderfully complex, and in the oblique directions which their surfaces enforce. The most extensive motion is that in which the external and posterior portion of the astragalus slides from before backwards, and from without inwards, on the corresponding surface of the calcaneum, at the same time that the anterior and internal portion of the astragalus glides from within outwards, and from before backwards, on the antero-internal surface of the calcaneum, and *vice versa*. The common centre of these two simultaneous movements is nearly in the axis of the limb; and consequently its result is a certain degree of rotation of the astragalus on its vertical axis, which carries its head a little outwards, and causes the subordinate movement of the two

malleoli. An analogous result, but one which ought not be confounded with this, may still be produced, when the astragalus and calcis fixed one upon the other are drawn into a common movement by the deviation inwards of the great tuberosity of the calcis, under the influence of the retraction of certain muscles, which directly flex the foot by its internal edge. In this case even the astragalus has undergone a slight motion of rotation from within outwards, but only in consequence of the simultaneous displacement of the calcis. The head of the astragalus causes, as in cases of essential rotation, a slight projection on the outer side of the foot. Scarpa did not recognize these two kinds of rotation of the astragalus, the one essential, the other subordinate to the primitive rotation of the calcis; because he did not suspect the diversity of causes which originate these displacements, and this caused him to think that the external displacement of the head of the astragalus was always the effect of its being laid bare by the gliding inwards of the scaphoid.* In proof of the reality of the facts which I oppose to an authority so great as that of Scarpa, and without prejudice to those other facts which shall in the course of this treatise reproduce them before the reader, I shall cite the material alterations which are observed in the articulations of the astragalus and calcis of subjects affected for a long time with varus club-foot, or varus equinus. The posterior portion of the internal border of the astragalus has been so strongly pushed against the smaller apophysis of the calcis, that the latter becomes deformed, depressed, and pushed backward, and sometimes almost completely effaced; the posterior part of the astragalus having been a long time applied, and as if crushed against the edge formed by the projecting angle, which rests on the smaller process of the calcis, is thinned and sometimes half detached from

* “ Cette præminence, dit Scarpa, ne depend point d’une mauvaise position de la surface articulaire de l’astragale, mais de la torsion vicieuse de l’os naviculaire, qui laisse à découvert l’articulation de l’astragale.”

the rest of the bone, I have specimens in which this alteration is strongly marked.

Besides this motion of rotation of the astragalus, and of simultaneous rotation of the astragalus and calcis accompanying the twisting of the foot on its external side, the corresponding surfaces of the astragalus and calcis permit moreover to the latter a certain degree of rotation on its longitudinal axis, in consequence of its gliding obliquely from before backwards and from without inwards on the inferior facettes of the astragalus. The determination of these motions, deduced solely from the directions and relations of the articular surfaces, becomes better established according as the results furnished by the examination of the insertions, the directions and the mode of action of the muscular powers becomes more clear.

The tibialis anticus commences at the superior and external extremity of the tibia, crosses the limb, and passes to the inferior surface of the first cuneiform bone. In virtue of this direction it acts in two ways; it causes the scaphoid to turn on the head of the astragalus, on account of being inserted anterior to it; moreover, in pulling obliquely from before backwards and from within outwards, it acts on the anterior extremity of the astragalus with an obliquely applied force, the perpendicular resultant of which acts in such a manner as to push the head of the astragalus from within outwards, that is to say, to cause its rotation on its vertical axis.

The tibialis posticus, one of whose inferior insertions is at the tuberosity of the scaphoid, and the other at the cuneiform bones, concurs also in this double movement, whether directly in drawing the tuberosity of the scaphoid upwards and inwards, or indirectly in favouring the action of the tibialis anticus, in order to produce deviation of the head of the astragalus, or finally in determining the adduction of the anterior part of the foot, which increases the intensity of the action of the tibialis anticus by a greater separation of its points of insertion.

On its side, the calcaneum forced to describe with the astra-

galus a slight movement of rotation on its vertical axis, has a tendency also to incline itself on account of the direction of the astragalo-calcanean articular facettes, and of its subordination to the motions of the anterior part of the foot through the medium of the cuboid. From this results, that the longitudinal axis of the muscles of the calf ceasing to run parallel to that of the leg and forming with it an acute angle, is thence placed in a direction favourable to the more complete returning of the entire foot. It is thus that the direction of the action of the muscles of the calf, modified by the first degree of turning of the foot, increases and completes the turning. We may add, that the common flexors of the toes and the flexor pollicis proprius become themselves, under the influence of this displacement, secondary agents in turning the foot, whether they act as abductors or as rotators outwards. In the formation of the varus club-foot the same thing occurs, but in a permanent manner, and often in more strongly marked degrees.

Any one may assure himself that this is the case, by pressing the muscles of which we speak, whilst endeavours are made to bring back the foot to its proper position. The tendons of the tibialis anticus and posticus are hard, tense, resisting, and opposing themselves directly to the restoration of the foot. The tension of the Achilles tendon is little marked in simple varus; it may even be but the result of passive retraction of the gastrocnemii, whose points of insertion have been brought and maintained nearer than usual; but this tension increases in proportion as the state approaches nearer and nearer to the forms of equine varus or varus equinus. If it be the tibialis anticus, its retraction is easy enough to be seen by the way its tendon stands out under the skin. Sometimes, when efforts at reduction are made to render this prominence of the tendon more remarkable, it happens that the tendon presses immediately on the subjacent parts, principally in young subjects, and can no longer be distinguished from those parts. In these cases the deformity is ordinarily more marked, but the spontaneous mo-

tions of the child temporarily increase it, under the influence of the contraction of muscles already contracted. Thence we may follow with the increase of prominence of the tendon of the tibialis anticus under the skin, the proportional increase of turning up of the foot.

But this turning of the foot on its external edge is only one of the elements of varus in its most complete state of simplicity. It almost always presents two other elements of deformity, viz., permanent adduction and curvature of the foot along its internal edge. The first of these is the result of retraction of the tibialis posticus, to whose action it is necessary to add secondarily that of the flexor muscles of the toes, become adductors by the deviation of the anterior part of the foot inwards. The curvature of the internal edge of the foot, to the degree in which we meet it in simple varus, depends at first on the gliding of the scaphoid on the head of the astragalus, and on the rotation of the latter on its vertical axis, a rotation which, as I have said, causes its anterior extremity to diverge externally; and thence the curvature on the internal edge of the foot. But the retraction of the adductor and flexors of the great toe assist powerfully in this curvature, and particularly when it is well marked. We may repeat with regard to these muscles, and the elements of deformity which they produce, the physiological and pathological analysis applied to the elements of twisting in varus.

Direct experiment has shown me, that physiological adduction is principally the result of the action of the tibialis posticus muscle; during this motion we can feel through the skin, and even see behind the internal malleolus the prominence of the tendon, which is hard, tense, and resistant, as is felt when attempts are made to reduce the varus, showing that the deviation inwards of the anterior part of the foot is owing to this muscle in particular. The same examination of the flexor muscles and the adduction of the great toe give a similar result; their tendons project under the skin, and mark plainly, by the close relation which exists between the direction of their action, and that

of the element of deformity over which they preside, that is to say, the curvature of the foot along its internal edge; they mark, I say, in a clear manner the influence which they exercise on the development of this element of varus. Before proceeding further, I feel that it is necessary to shew the exact value of the fact of the muscles being shortened in the direction of deformities of the skeleton. I have often mentioned in this treatise, and shall have occasion to mention again the tension of the muscles and the projection of their tendons under the skin, as a proof after many others of their primitive retraction. Since I have established that the bringing nearer of the opposed points of insertion of muscles causes a retraction or passive shortening of their fibres proportional to the sum of the reduction of their course, I have furnished a new argument to those who still support the doctrine of secondary shortening of the muscles in club-foot. But on looking at it more closely, we see that this argument is but specious. And first, without being obliged to recall the direct proofs furnished in my former treatise, in order to establish the fact of primitive muscular retraction, it shall suffice me to show, that if the shortening of the muscles occurred after the deformity of the skeleton, it will be impossible to comprehend why those muscles, passively shortened which ought to be relaxed, are on the contrary tense and prominent under the skin. They ought to do as their antagonists, and above all in children who have not walked. However the contrary always occurs, that is to say, independent of the shortening, there is tension and a marked prominence under the skin, there is hardness and resistance of the tendons; whilst on the opposite side, where the muscles ought to be more stretched and resisting, in consequence of their points of insertion being more distant, they in general preserve their normal condition. This fact is very remarkable in chronic cases of wry-neck, I have shown very often, that the sterno-mastoid portion (sternal portion of authors) is alone primitively retracted, and the cleido-mastoid, or clavicular portion, is only secondarily or passively

retracted. In this double example of the two kinds of retraction, the prominence and hardness of one of the muscles, the depression and softness of the other, explain well the nature and different origin of their shortening.

2. *Equine Varus*.—This is the sub-variety of club foot in which the heel is elevated, and the most anterior part of the front of the foot more or less twisted, but in a degree less than the elevation of the heel.

In the first stage of equine varus the heel is raised, the sole of the foot forming an angle of forty-five to fifty degrees. The foot is not yet turned upon its external surface. Adduction of the foot alone accompanies the elevation of the heel. The patient rests upon the anterior part of the plantar surface of the metatarsus and toes, but principally on their external half. The depression of these parts goes on diminishing from the little towards the great toe, which latter does not touch the ground, or only touches it by some points of its external surface. A vertical line passing by the limb and the tibio-tarsal articulation falls on the little toe in such a manner, that the centre of gravity represented by this line acts in an angle favourable to the increase of adduction of the anterior part of the foot, and consequently favourable to its turning on its external surface. Sometimes one of the toes, principally the great toe, is flexed; but this is an exception to the general rule. This peculiarity is not clearly appreciable, except in infants who have not yet walked. These are the most simple forms of the first stage of equine varus. These forms appear to be exclusively determined by retraction of the muscles of the calf and the tibialis posticus, to which must be added in some cases the exceptional action of one of the flexors.

In the second stage of equine varus, the forms of preceding stages become more developed, and complicated with the following; to elevation of the heel and adduction of the anterior part of the foot, is added excavation of the plantar surface, and internal edge of the foot. In young subjects who have

not yet walked, the surface is traversed by one or two grooves, the first passing transversely along the sole of the foot at the end of the articulation of the first and second range of tarsal bones ; the second in form of an arch, directs itself from the internal border of the foot obliquely to the base of the second toe. and thus indicates the seat of the retraction of the common flexors of the toes, existing simultaneously with that of the flexor pollicis proprius, but separate and distinct from this latter. In the patient which has walked, the toes, with the exception of the great toe, are subluxated forwards on the metatarsal bones. The great toe is ordinarily carried a little forward, but always inclines inwards ; sometimes it participates in the subluxation of the other toes, although in all cases it is less depressed against the ground than the other toes, on account of the adduction of the anterior part of the foot. In these different cases, the excavation of the plantar arch, and of the internal edge of the foot, is obliquely traversed by a fleshy elevation passing from the heel to the base of the great toe, but only in subjects which have walked. Sometimes in the same stage, the three or four last toes are bent under the plantar arch, and the patient begins to walk on the anterior fourth or fifth of the external surface of the foot. There are cases when the contrary takes place, when the patient walks on the anterior fourth or fifth of the external part of the foot, but also on the plantar surface of the last metatarsal bones, and lesser toes ; in this case, the toes corresponding are completely subluxated forward on the heads of the metatarsal bones. In all cases, the characteristic forms of this second stage of equine varus are, the participation of retraction in the flexors and extensors of the toes, with that of the muscles of the calf, and the tibialis posticus. The excavation of the plantar surface, and of the internal edge of the foot in subjects who have walked, and the grooves which traverse this surface in young infants, can have no other origin. We may add, that even in very young subjects, the plantar excavation may take the place of these grooves ; this happens when retraction occurs

simultaneously in all the extensors and flexors. With regard to the fleshy prominence which obliquely traverses the plantar surface of the heel to the great toe, it is sometimes the result of retraction of the adductor, and of the flexor proprius pollicis, sometimes a simultaneous retraction of the plantar aponeurosis, which is gathered into a fasciculus in the joint, and becomes confounded with the muscles previously indicated.

In the third stage the same forms have acquired their greatest development. In the infant which has not walked the external and anterior part of the foot is strongly drawn under the plantar surface; the toes are usually much flexed, or both flexed and extended at once, much separated, and irregularly disposed, as in the third stage of equine varus. What in fact distinguished these two stages from the two different sub-varieties is, that in the equine varus, the heel continues to be much elevated, and is never drawn towards the great toe, the subject only resting secondarily on the external edge of the foot, at the junction of the articulations of the two ranges of tarsal bones, whilst in varus equinus the elevation of the heel is trifling, it is drawn very close to the great toe, and the twisting of the foot on its external, and even its dorsal aspect, is constant. But in both the sub-varieties the excavation of the plantar aspect is extreme; the toes are at once extended and flexed; the anterior part of the foot is dragged under the posterior part, and the leg forms anteriorly at its point of union with the foot, an angle regularly circular, resulting from the subluxation of the astragalus forward, in consequence of the immediate contact acting between the posterior edge of the articular surface of the tibia, and of the superior aspect of the calcis. The third stage of equine varus, in fact, does not differ from the third stage of pes equinus, except in addition of extreme adduction of the anterior part of the foot. In this case, the retraction of the tibialis posticus continues to be carried to its greatest extent, and balances, with the aid of the flexors and extensors of the foot, become adductors by the change of direction of their inferior insertions,

balances, I repeat, the retraction of the muscles of the calf. It is useless to repeat, that with those two principal guides to action which decide the principal forms of this sub-variety of club-foot, there is, or may be, a concurrence of the accessory influences of the small muscles of the plantar and dorsal regions of the foot, in a more or less variable manner. When the retraction is general, and carried to its greatest height, but in different degrees, in all the muscles of the leg and foot, the forms characteristic of each variety of club-foot are accompanied almost always by a crowd of other elements of accessory deformity. It is requisite to keep this circumstance in sight, because it gives at every step the key to secondary combinations, kinds of changes which multiply themselves infinitely around the more fixed, decisive, and marked characters of muscular retraction, which occupies the strongest and most important muscles of the leg and foot.

Varus Equinus.—I have denominated varus equinus, the combination of the two varieties of varus and equinus in such proportion, that the form of varus predominates over that of pes equinus. In this variety of club-foot we must make three stages, and in the first stage there are four principal elements to consider: first, the turning of the foot on its external side; second, the elevation of the heel; third, the adduction of the anterior part of the foot; fourth, the curvature of the foot on its internal edge. We shall see with what facility muscular retraction accounts for each of these elements in their separate stages, by pointing out the muscles which it puts in play.

The analysis which I have given of the primitive varieties, equinus and varus, permits of my omitting an account of many of the developments. It shall suffice to remark, that the muscles whose retraction causes each of those simple forms, associate their action in varus equinus in very nearly equal proportions. I shall note, according to the importance of their action, the anterior and posterior tibials, the gastrocnemii and solei, the common and proper flexors of the toes, the adductor of the

great toes, the peroneus longus, and sometimes the common extensors of the toe, and the extensor proprius of the great toe.

In the first stage of varus equinus, the plantar aspect of the foot forms with the horizon an angle of about forty-five degrees, and the foot rests on the ground on the extremity and length of the fifth metatarsal bone. The heel is separated only by some lines, but the internal aspect of the calcaneum looks upward and forward. In this stage, where the forms are rigorously those which the foot could assume during corresponding physiological movements, it is impossible not to see two evident results, viz. that the relations of the articulations are only repetitions of analogous physiological motions, and that the retracted muscles are those which are affected in these motions. Thus the anterior part of the foot has described a slight motion of rotation on the astragalus, by just so much has the anterior third of the pulley in the astragalus deserted the surface of the tibio-peroneal mortise, and the posterior edge of this latter approaches by a like quantity to the superior and internal surfaces of the calcaneum ; with the ideas already laid down, it is hardly necessary to indicate the agents of these dispositions. The tibialis anticus has commenced the turning of the foot, the tibialis posticus has indirectly assisted in this turning, at the same time that it almost alone affects the adduction of the anterior part of the foot : the muscles of the calf have raised the heel, and in consequence of the primitive displacement caused by these muscles, each of them alone, or in union with others, has produced a secondary action, the result of which is added to each element of primitive displacement. Thus the muscles of the calf have aided in the lateral turning of the foot, by means of the inclination first given to the calcaneum by the tibial muscles ; the extensors and flexors of the toes, if they have been some time retracted, or if the patient has used the limb for a long time, act as adductors under the influence of the internal displacement caused by the tibialis posticus.

The curvature of the foot on its internal edge is caused, as I

have said already, by the action of the tibial muscles, which indirectly produce a deviation externally of the head of the astragalus, and by the adductor and extensor proprius of the great toe. The common extensors and flexors of the toes aid in the same way, secondarily, by an action derived from the same cause, hence it often results, that the external edge of the foot describes a curve concentric to that of the internal edge, which could not occur if the adductor muscles and flexor pollicis proprius alone exercised their action.

Let us remark on this occasion, that flexure of the foot on its internal edge, infers necessarily deviation of the head of the astragalus outwards, or rotation of the bone on its vertical axis. By this artifice the centre of motion of flexion is transferred towards the calcaneo-cuboid articulation; in the opposite case, that is to say, in cases where the centre of motion of flexion corresponds to the astragalo-scapoid articulation, flexion could not take place without causing considerable separation between the calcaneum and the cuboid, equal to the arc of a circle having for radius a line passing from the astragalo-scapoid articulation as its centre. Finally, we see, without multiplying details, that the same principles, if not the same agents, differently distributed, are applicable to every stage.

It might be thought that it would be sufficient to state the same analytic formula for the following stages of varus equinus, by adding to each the terms of which the new degree of corresponding action is composed, in the development of the forms under which each of those terms is ranked. It is not altogether thus; in the second and third stage of varus equinus some new agents and new combinations occur in the anatomical forms of the foot, the mechanism of which it is necessary to determine.

In the second stage of varus equinus the plantar surface forms a right angle with the ground, and the patient supports himself completely on the external surface of the foot: this is the limit of this stage. Each of the elements of club-foot advance nearly in the same proportion; the rotation of the forepart of the foot,

elevation of the heel, adduction of the foot, and curvature of its internal edge, are the most manifest. But to these elements of deformity the following are added, the two malleoli are no longer situated, with regard to each other, in the usual plane ; the internal becomes more anterior, and the external more posterior ; the leg also undergoes a slight degree of rotation on its axis. The curvature of the internal edge often becomes angular, and many irregular osseous projections, formed by the disjuncting and subluxation of the calcaneo-cuboid and astragalo-scaphoidienne articulations, are to be seen on the external surface of the foot. Finally, at the same time that the curvature of the internal edge of the foot assumes the angular form, this edge is often confounded with the plantar surface, which shares in this curvature from within outwards, and sensibly diminishes in breadth. The toes are sometimes strongly drawn inwards or outwards, get astride of one another, and sometimes take different directions, some being flexed and some extended. These peculiarities, which may be met with in all kinds of club-foot, only the better demonstrate their common origin, without preventing the distinction of the forms characteristic of the principal varieties.

The displacement of the two malleoli, the internal being carried forward, the external backward, results from two causes ; first, from the rotation of the astragalus on its vertical axis, a rotation which I have already remarked has for its immediate and necessary effect the drawing in the same direction the malleoli, betwixt which the astragalus is locked. The second cause of displacement arises from the powerful tension of the tibialis posticus, which drives before it the inferior extremity of the tibia. We know that the tendon of this muscle is lodged in a groove excavated in the posterior edge of the internal malleolus ; that it presses on the extremity of the malleolus, as on a pulley, in order to pass from thence to the tuberosity of the scaphoid ; besides we know that the superior insertion of the tibialis posticus takes place on the posterior surface of the superior third

of the tibia, near to its external edge, that is to say, in a plane totally different from its inferior insertion. Thus, when there is a considerable degree of retraction, the reflected tendon endeavours to place itself in a right line between the two points of insertion, and to place its two insertions in the same plane, whence the displacement forward of the internal malleolus. Some one might object, that the displacement of the malleoli is the result of an effort made by the patient to replace the point of the foot forward. But in the foetus, where progression has not as yet obscured the results of muscular retraction, I have seen the top of the external malleolus brought so close to the scaphoid by means of considerable flexion of the foot along its external edge, and of strong adduction of the anterior part of the foot, and of considerable displacement of the internal malleolus forward, that these two points were only separated from one another by two lines. In such a case the tendon of the tibialis is carried forward out of the groove which it usually occupies: this was partly discovered.

The conversion of the curvature of the internal edge into an angle, and the diminution in breadth of the plantar surface, are the results of retraction of the peroneus longus. This muscle having been reflected on the extremity of the external malleolus, passes in a channel formed in the external and inferior surface of the cuboid bone, where it is retained by a fibrous aponeurosis, and thence passes, forming an obtuse angle, to the base of the first metatarsal bone, and to the adjoining part of the first cuneiform bone. A strong contraction of this muscle can cause the internal and external edges of the foot to approach one another, by drawing the first towards the second, whilst the forepart of the foot is held adducted by the tibialis posticus. This approach of these points cannot be caused except by the drawing in of the point corresponding to the articulation of the first cuneiform bone with the first metatarsal, at the summit of which is formed the apex of the angle, or of the curve formed by the internal edge of the foot. We can see in varus equinus,

where this form of deformity is marked, the elevation formed by tension of the long peroneus immediately above the internal malleolus, and made certain by endeavouring to restore the internal edge of the foot, of the existence of retraction carried to a great extent in this muscle.

The projections formed by the calcaneo-cuboid, astragalo-calcanean, and astragalo-scaphoid articulations, are not less easy of explanation. We may commence by saying, that these projections are to be observed as well in those individuals who have never walked as in those who have made use of their feet. They are the result of the deviation of the head of the astragalus outward, and of pressure exercised on the extremities of the parts contained in the curvature of the internal edge and inferior surface of the foot. When the foot is bent in this direction, independent of the rotation of the astragalus, which is the most perceivable displacement, it impels outwards and subluxates the bones of the second range like the coins of an arch, which are pressed upon and crushed in their smaller extremities. This displacement and this projection are still more favoured by the dragging and distancing of the articulations which border on the edge and external surface of the foot, a dragging resulting from the curvature impressed on this edge and surface. It is hardly necessary to add, those projections of the periphery correspond to the depression of the internal edge of the foot and its plantar surface; and, finally, this last series of results proceeds from retraction of the common flexors of the toes, of the flexor pollicis longus and adductor, to which frequently are added the corresponding extensors, so that the resultant of their simultaneous retraction becomes confounded in the cord of the curvatures of the internal border of the foot and the most internal part of the plantar surface.

The third stage of varus equinus exhibits less difference with the second than the second does with the first. In the third stage the plantar surface looks inwards and upwards, and the foot touches the ground only by its dorsal surface. All the

elements of the second stage exist, but proportionately more developed. The overturning of the foot is almost complete, that is to say, it is nearly upside down; adduction is extreme, so that the point of the foot is sometimes turned backwards; the heel continues elevated, and is carried inward so as to approach the toes. I have seen an example in which the great toe and heel actually met.

Finally, as at the same time cause and consequence of the dispositions which precede, the curvature of the internal edge and plantar surface of the foot forms a very acute angle; it is to this collection of extreme deformities that authors have given the name of complete rolling up of the foot. In these rare cases the anterior part of the foot is so drawn upwards and inwards, that its internal edge and plantar surface are applied against the leg. Let any suppose, along with these elements carried to their greatest degree, extreme retraction of the muscles affected in the production of the forms of the second stage, that is to say, of the anterior and posterior tibialis, the gastrocnemii and solei, and the common and proper extensors and flexors of the toes, and the material reason for these results will be evident; this I have had opportunity of examining in many monsters and adults. In the former the muscular retraction and the consecutive arrest of development are often carried to their greatest degree; thus it is not rare to meet amongst them forms of club foot proportioned to these energetic attacks of their essential cause. I shall add, that in these cases the retraction occupies the greater part of the muscles of the leg and foot, and the accessory muscles of the plantar region, as well as those of the dorsal aspect of the foot participate in it, contributing, within the limits of their force, direction, and the degree of retraction with which they are affected, to the accomplishment of the extreme deformities which characterize the last stages of varus equinus. Thus I have seen in certain cases of retraction, the short flexor of the toes, the accessory of the long common flexor, the ob-

lique abductor of the great toe, concurring to realize the extreme forms of varus equinus.

III. OF VALGUS CLUB-FOOT.

In valgus the foot has a tendency to turn up on its internal edge, the plantar surface looking outwards. This variety of club-foot is very rare, because it can only exist under exceptional conditions of muscular retraction ; but for this very reason they are only the more distinct and easy to determine. We shall first specify the forms characteristic of valgus, and then show their immediate relations to the etiology which regulates the other varieties of club-foot.

We must not confound true valgus with that turning up of the foot on its internal edge succeeding displacement or rachitic curvatures of the knees and bones of the leg. In true valgus the skeleton is sound, the bones have their ordinary form, they have only suffered, as in other varieties of club-foot, changes in their articulations. In fact, valgus in its most ordinary form consists in a motion of rotation of the anterior part of the foot on the head of the astragalus, being a permanent form of this borrowed motion, and requiring the same muscular agents to produce it. All cases of valgus which I have had an opportunity of observing, may be referred to three forms, which may constitute three different stages.

In the first stage, the anterior part of the foot, as I have said, has undergone a movement of rotation from within outwards and from below upwards on the head of the astragalus. The surface and external edge of the foot describe with the external anterior part of the leg an angle varying from a right angle to an acute angle of thirty or thirty-five degrees. One or more tense cords are to be seen ordinarily between these two surfaces, projecting under the skin and opposing themselves directly to the restoration of the foot ; these cords are formed by the anterior peroneus and the common extensor of the toes. In a more advanced stage the forepart of the foot is not only ele-

vated externally, but it is more or less forcibly abducted; here retraction of the lateral peronei is united to that of the anterior peroneus and the extensor digitorum communis.

Finally, in the last stage, an extreme one, which I have only met in monsters, the foot is strongly curved on its external edge and forms an acute angle, the summit of which is in the centre of this edge; in certain cases, this curvature accompanies a very considerable elevation of the external aspect of the foot, which may proceed as far as contact with the external surface of the leg. In these cases there is, besides retraction of the anterior long lateral peroneus, retraction of the short tibial peroneus, of the abductor of the little toe, and of the flexor digitorum communis. The first, being attached to the external angle of the posterior extremity of the fifth metatarsal bone, by its extreme retraction, forces this bone to move on the cuboid; the second, being inserted by one of its tendons into the calcis, and thence passing to the external margin of the base of the first phalanx of the little toe, commences the curvature; at the same time the flexor digitorum communis, the direction of which is oblique with regard to each of the metatarsal bones, completes the curvature of the foot along its external edge.

Such are the forms, and such is the mechanism for the production of valgus in its different stages. It is, at first sight, difficult to comprehend how muscles of such small power as the peronei and common extensor of the toes could be capable of producing almost alone permanent states so opposed to those which result from the more powerful and energetic action of the gastrocnemii of the tibial muscles and of the common and proper flexors of the toes, for the natural movement which valgus represents is very limited, and little capable of balancing the movement caused by the antagonist muscles. Something more is therefore necessary to valgus than the direct retraction of the affected muscles; this is paralysis of the muscles whose antagonism would be too great to permit of valgus occurring. Thus any one could assure himself directly in subjects attacked with

pes valgus in a marked degree, that the gastrocnemii, solei, and the tibialis anticus and posticus, with the flexors of the toes, are more or less paralyzed. They have undergone the extreme degree of that nervous affection, the slightest degree of which stops at simple retraction, that is to say, at immediate shortening and consecutive arrest of development. This is seen, not only in the form of the leg and foot, but still more in the want of power, more or less marked, of the latter. The leg is flabby, flat, and without muscular elevations; the foot moves all in one piece alone in the direction of the least paralyzed muscles; it is often passive in whatever direction it is pushed. In other respects its form is not that of ordinary club-foot, where all the bones appear to be bridled between the different retracted muscles; the foot is, on the contrary, elongated without reliefs or projections; its sensibility and heat, much diminished, are in unison with its motion, and the other characteristics preceding. It is not absolutely necessary to establish the species, that all these particulars should be rigorously met together. I have shown it in its most remarkable forms, because it exhibits itself such in certain cases, but I have taken care to state, that the paralysis which always in a greater or less degree accompanies certain muscles in valgus, is proportioned to the direct degree of retraction inherent in the muscles specially affected in the formation of this variety of club-foot. I shall add, not to exclude any fact from the doctrine that I am bringing forward, that the existence of this solitary paralysis in certain muscles would suffice to permit, of the non-retracted antagonist muscles, causing by the absence of all antagonism, the deformity which they produce in a much more marked manner permanent when retraction is superadded. This is true not only in club-foot but in general, and is seen in the history of all articular deformities.

IV. TALUS.

Pes talus is the opposite of pes equinus, that is to say, the heel is depressed and the forepart of the foot elevated. This

variety, like the last, is necessarily rare, because, like it, it demands an exceptional condition of muscular retraction. In fact, in talus the forefoot is raised, and in its extreme degree it is elevated so as to bring it in contact with the anterior part of the leg. In order that the heel should be depressed to this point it is requisite that the posterior muscles, the gastrocnemii and solei, should give way in a degree much exceeding that of their ordinary elongation. Farther on I shall show how this condition is easily reconcileable with the fact of retraction of the muscles specially affected, to the physiological movement which the form talus represents. In fact this form of club-foot, like all the others, is but the permanent representation of a physiological motion: it is the flexion of the foot on the leg rendered permanent, and this state is undoubtedly the product of retraction of the muscles which are employed in producing the similar motion in a natural state. There is no need of any great disclosures in order to demonstrate both of these points. It is sufficient to see an example of talus to be convinced that there is only a gliding of the tibio-fibular mortise on the pulley of the astragalus so as to bring their corresponding edges into contact; it is even impossible to distinguish by its form the first stage of genuine talus from the temporary position assumed by the foot in physiological flexion. The muscular agents which produce these two forms are the extensors of the great toe, the common extensors of the toes, the tibialis anticus, and anterior peroneus; in a word, all the muscles which pass from the anterior surface of the leg to the superior surface of the foot. We have direct proof in these two cases: in simple flexion we feel the tendons of the muscles which are contracted; and in permanent flexion, or talus, we feel the same tendons projecting more and more under the skin, according as the talus is the more marked, and as more violent efforts are made to establish the normal form of the foot. Meanwhile, what is the influence which enables the relatively more feeble muscles of the anterior part of the leg and foot to overcome the resistance of the more powerful mus-

cular masses of the calf? The same as that prevailing in valgus, viz., paralysis of the muscular masses. Here, as in valgus, the form of the calf, the want of resistance in the muscular fibre, which is converted into a fatty cellular tissue, the real elongation of the gastrocnemii muscles beyond their ordinary bounds ; finally, the failure of contractibility, sensibility, and normal heat, leave no doubt as to the state of more or less complete paralysis affecting those muscles, whilst those of the anterior part of the leg are affected with the same nervous affection only to the degree of simple retraction, so as to be extremely shortened with little or no paralysis.

Such are the principal forms hitherto known of club-foot, considered in their relations to the etiology of muscular retraction. I have confined myself in this essay to the examination of these four varieties and their principal combinations, in order to simplify the demonstration I had to give. But since I became acquainted with the truth of their real origin, I have been enabled to discover some other forms entirely new, which have not been included in the divisions admitted by authors. For, as I have said, the more exact knowledge we possess of causes, the more closely are we led to an exact determination of forms. These new varieties shall be better shown in a particular treatise.

V. CONSEQUENCES AND CONCLUSIONS.

The consequences which follow from the etiological analysis which I have given in this treatise are of two orders ; one, establishing in a definite and positive manner, the fact of muscular retraction as the cause of club-foot in all its different states ; the other conducting to a new system of treatment, inasmuch as it applies in a new manner, those agents which have hitherto been employed in an incomplete, empirical, and dogmatic manner. I shall explain myself on those two subjects of consideration.

When in my treatise on the general etiology of congenital

club-foot I established the fact on which depended all the varieties of this deformity, I was only able to invoke, in support of my opinion, the general proofs which it could establish. In order to demonstrate that congenital club-foot is the product of muscular retraction combined with an affection of the nervous centres of the nerves themselves, I adduced numerous examples in which material traces of the disease coincided with the deformity; I showed besides, that in cases where the traces did not exist, and where, for example, retraction had been the product of the affection of a simple nervous branch, that the nature of the deformity might still be revealed by the general characters of club-foot itself.

I established, besides, that independent of those general characters, common to all the varieties of club-foot, there existed for each of them special characters also furnished by the special manifestation of muscular retraction.

The analysis in this treatise has had for its object to give rules to every disposition and combination of retraction of the muscles of the leg and foot. Each variety, each sub-variety, and each of their stages, are, as I have said, different expressions of retraction, diversified in its intensity, in its situation, and in the multiplied relations of the different elements which compose it. What, in fact, can be more significant to determine the essence of retraction and its material existence, than this association in the same club-foot of the natural state, and of the retraction and complete paralysis of certain muscles? What more characteristic than this succession of forms, appearances, projections, and different manner of existing, so well explained by the shortening and paralysis of such and such muscular agents, so exactly in the line of action of these agents, and representing so well in a fixed state, the form of motions which in the normal state they cause in a transitory manner? What more marvellous correspondence can exist, than that of all the forms of club-foot with the different combinations of which the articulations are susceptible in the physiological state. For the fact is now

proved clear as day, that the most extreme degree of club-foot, the most exaggerated and isolated is but the excess of certain normal motions of the joints producing displacement of the bones of the foot, which are dragged beyond their natural relations, by the same muscles which regulate these same relations in the physiological state? What evidence and meaning can be more explicit and material than that which results for each variety of club-foot, from the tension of muscles placed in the concavities of the curvatures, this tension continually augmenting with the stages of the deformity: finally, from the disappearance of all obstacles, to the reduction of the foot on section of the tendons, which confine the extremities of each of its curvatures? This leads to the examination of the therapeutic consequences.

There are few minds which would not spontaneously deduce the practical consequences which these observations include. I have said elsewhere that the therapeutics are only the etiology reversed. Let us reverse muscular retraction, that is, let us destroy it in its different manifestations; let us attack it and cause it to disappear in the different muscles which it occupies, and we shall have all the therapeutics of club-foot. Thus some one for experiment sake cut the tendon Achilles, because it appeared to be a material and principal obstacle to the reduction of the foot; some persons have even accidentally employed the same operation without any other motive, to certain other muscles of the leg; but these were but blind applications, which possessed neither indications for the present, nor consequences or fixed rules for the future. For whilst it is known and specified for each variety of club-foot what may be the number and relations of the retracted muscles; whilst it is known that such and such forms depend on the retraction of such and such muscles, according to their importance and the degree of resistance which they offer to the restoration of the foot, ought that operation, hitherto reserved for the tendon Achilles, to be applied to them. Let us add that the machines employed to complete the surgical treatment ought not to be applied vaguely to restore the shape of the foot;

but should be applied directly to overcome such and such muscles, and consequently to act in a direction diametrically opposed to their retraction. I shall have said all in adding, that experience has fully and frequently confirmed these inductions of etiology. In *pes equinus*, I divided the tendon Achilles, and sometimes the flexor proprius pollicis; in pure *varus*, I cut the tendons of the anterior and posterior tibialis; in *equine varus*, the tendon Achilles and the tendon of the tibialis posticus; in *varus equinus*, the anterior and posterior tibialis, the tendon Achilles, the proper extensor and adductor of the great toe, and sometimes the long lateral peroneus; in *valgus*, the anterior and lateral peronei; in *talus*, the tibialis anticus, the anterior peroneus and the common extensor; and finally, the plantar aponeurosis and other muscles for other forms, which I shall not speak of here, but which only require applications of the principle shown in this treatise.

Such is the etiological demonstration of each variety of congenital club-foot, considered in relation to muscular retraction. This, which comprehends a new analysis of the dispositions of the articular surfaces of the bones of the foot, of the muscles which displace them, the motions which they execute, and the displacements which they undergo in each variety of club-foot, may be resolved into the following propositions:

1st. All the forms or varieties of congenital club-foot are the result of muscular retraction, the elements of which are differently distributed and combined in the muscles of the leg and foot; the retracted muscles in each variety of club-foot are those whose temporary contraction causes a similar physiological movement; whence it results, that every club-foot is but the permanent exaggeration of the form of a corresponding physiological motion of the foot.

2nd. All the varieties of club-foot are simple or compound; simple, when they are exclusively the result of retraction of the muscles which preside over the special form of the variety; compound, when to retraction of these muscles is joined, but in

different degrees, that of the greater part of the muscles of the foot and leg ; in such a way that the same muscles may be retracted in the different varieties of club-foot, and the varieties of this deformity are as often due to the combination of the degrees of retraction as to its situation.

3rd. The special forms of pes equinus are the product of retraction of the gastrocnemii, solei, and flexors of the toes ; those of varus of that of the anterior and posterior tibialis ; those of valgus of the lateral and anterior peronei ; those of talus of the anterior tibialis, the long extensor of the toes, and the anterior peroneus, with complete or incomplete paralysis of the gastrocnemii and solei. The forms of the varieties of association which result from the combination of these principal varieties amongst themselves are the product of the simultaneous retraction of the same muscles, to which must be added, as accessory or complementary elements of deformity, retraction of the short extensors or flexors of the toes ; of the adduction of the great and little toe and of the plantar aponeurosis ; in a word, of all the muscles of the leg and foot.

4th. The surgical treatment of congenital club-foot ought to comprehend the section of the tendons of those muscles, whose retraction causes the pathological form of the foot ; when the heel is elevated, the tendon Achilles ; when the foot is turned on its external edge, the tibialis anticus ; when on its internal, the anterior peroneus and the whole or part of the extensor of the toes ; for forced adduction of the foot, the tibialis posticus ; for abduction, the peronei laterales ; for curvature of its internal edge, the adductor of the great toe ; for extension or permanent flexion of the toes, the section of the tendons of the corresponding muscles ; and finally, the simultaneous section of the tendons of those muscles, whose simultaneousness of retraction causes the different combinations of form which club-foot presents.

5th. The mechanical or consecutive treatment of club-foot ought to rest on the same data ; that is, we should employ apparatus, the centres of motion of which ought to answer to the

centres of motion of the displaced articulations, and whose efforts should act in a direction exactly opposed to the action of the retracted muscles.

In a treatise shortly to be published, I shall make known in detail the proceedings, by the aid of which I have fulfilled these indications, as well as communicate some practical observations when they have been reduced to practice.

ART. VII.—*Observations on the Application of Mathematics to the Science of Medicine.* By WILLIAM GRIFFIN, M.D., Physician to the County of Limerick Infirmary, and by DANIEL GRIFFIN, M.D., Assistant Physician to the County of Limerick Infirmary, and one of the Medical Attendants in the Limerick Union Workhouse.

It must be confessed, that the science of medicine, whether we consider the length of time it has existed in the world, the high position it has a right to claim in relation to the well-being of mankind, or the rigorous and searching spirit of the present age, stands most undeservedly low in the scale of knowledge. Many subjects have been cultivated with infinitely more ardour than were of infinitely less importance, and even those persons who have devoted themselves with the greatest assiduity to its improvement, have been extremely slow to avail themselves of those methods of investigation, by the use of which other sciences, many of them but of yesterday's growth, have sprung up and pushed onward, and left it at a hopeless distance behind.

If we look to those sciences that we now admire for the stupendous truths they reveal to us, or the brilliancy and beauty of the discoveries they include, we find that they too, like medicine, have had their days of darkness, uncertainty, and error. Astronomy, the purest, the brightest of them, was mixed up and defiled with the vile superstition and cheating spirit of astrology. According to it, if man was born under a particular aspect of the heavens he might contend in vain against his doom, if an

evil one. It told him nothing that could be useful, and little that could interest him, save that in such a case, whatever might be his conduct or character, all the “skyey influences” were leagued against him. Modern astronomy has withdrawn itself from these base trammels, and speaks of facts which are demonstrable, and, though not less wonderful, in every respect practical and useful. It represents the globe he inhabits as but a speck amid the vast machinery of which it forms so inconsiderable a part, surrounded on every side by a gulf of inconceivable and frightful depth, yet taking its course through it with a regularity and steadiness so astonishing, that the mariner standing on the unstable deck of a ship, and observing the positions of the heavenly bodies with an instrument the size of his hand, can, with the assistance of a page or two of numbers from the nautical almanack, not only determine its position in space, but can even determine the point he occupies on its surface, in latitude within one mile, and in longitude within twenty. Thus while astronomy, in the order and beauty of the mechanism of the heavens, furnishes the strongest evidence of a designing and benevolent mind, a bright contrast to the predestinating doctrines of astrology, it, in one sense, fulfils the old astrological notion of a powerful influence over man’s welfare, though not a supernatural one; for upon a knowledge of the positions and hourly changes of the heavenly bodies, are every day staked the wealth of nations, and the lives of thousands, and all this is the effect of number.

Again, turn to chemistry; who has not heard of the wild dreams of the alchemists, their search for the philosopher’s stone, the precious metals, and the elixir of life; their daily and nightly labours; their wasted health, poverty, and ruin, and their despairing and pathetic expressions on misspent time; yet from such beginnings as these did chemistry arise, and by following that course which the Baconian philosophy had left her a brilliant example of in the labours of Newton, raised herself to such a position as to be denominated the queen of the modern

sciences. The alchemists sought for gold; chemistry in the acts of life has brought more treasures to mankind a thousand fold than if they had discovered it: the alchemists looked for the elixir of life; chemistry has made more presents to the healing art than the latter well knows what to do with; and if it must be confessed that many specifics for diseased action have not yet been found among them, this is rather, perhaps, to be attributed to the fact, that the medical art has not followed the same straight methods in their application that chemistry has in their discovery.

The same thing may be observed of the science of optics, and if this science has not yet excited the mind of man by vain delusions in its early career, it is, perhaps, more remarkable than any of the rest for the brilliant and extraordinary results that have followed its investigations in later times; results which, in giving him the telescope and the microscope, have in a manner endowed him with new senses; have, by the one, as it were, lifted him many millions of miles into space, and enabled him to examine the bodies there revolving, and thus given him a kind of omnipresence; and by the other opened up a world to his view which, though contained within a smaller compass, offers a store of knowledge that will leave his industry unexhausted for centuries. These, too, are but a portion of its rich gifts; every day new discoveries are rising in it, all of them of the highest beauty and interest, and many of them of vast practical utility.

We might add to these examples by turning to other sciences, but it is unnecessary. Wherever we turn it is melancholy to observe the contrast that presents itself between the systematic and elegant arrangement of knowledge in these branches—the consequent precision with which this knowledge is applied to the questions that arise in them, and the irregularity, uncertainty, and confusion, that for the most part characterize the facts, the reasonings, and the conclusions of medical science. Take any one disease, such as fever, for example, what medi-

cal man is there, how great soever his reputation or experience, who will be able to tell what proportion of cases out of 10,000 or 100,000, are affected with the symptoms of involuntary discharges, subsultus-tendinum, hiccup, difficulty of swallowing, or any of the different combinations of these symptoms? and what proportion of these recover or die, or what proportion of cases out of the same number are seized with head affections, chest affections, or abdominal affections? and what is the mortality induced by these complications respectively? There is not so much as one man in these kingdoms who will venture to give even an approximate solution to such questions; yet the answers to them would perhaps save him a world of wasting anxiety as to the probable termination of cases, in the event of which every feeling of his heart is set. Again, take the question of the conditions proper for the exhibition of stimulants in fever. Some five and twenty years ago wine was given freely in fever; within the last ten it is stated, that "as many ounces are not now given as were then given pints;" and more lately again we see Dr. William Stokes, of Dublin, exhibiting it freely, and, apparently, with much advantage, in particular circumstances. The opinions as to the conditions proper for its exhibition are as varying, and there are high authorities ranged on opposite sides. Now let it be remembered that we have been treating fever since the days of Hippocrates, that by an uniform system of observation we might, even in one year, have the symptoms recorded in about 100,000* cases of typhus fever in these countries;

* As in general only the worst cases of fever are brought to hospital, and the mortality in hospital is about 5 per cent. on the admissions, it may perhaps be safely stated that it is no more than $2\frac{1}{2}$ per cent. on the whole of the cases occurring in and out of hospital, or about 1 death in 40 cases. As the deaths by fever in England and Wales, according to the Registrar-General's Reports, are about 18,000 annually, we have $40 \div 18000$, or 72,000 for the number of cases of fever that occur annually among the population of England and Wales. If the population of Scotland and Ireland be taken in, we should probably have not less than

and let us ask ourselves, is this a state of things that ought to exist? The phenomena of nature are passing before us, and we refuse to note them as they are noted in other sciences, and we have received our reward. It is not our wish or intention to underrate any of the valuable additions that have been made to our knowledge of the treatment of many formidable diseases within the present century; but it surely must be considered a lamentable circumstance that there is scarce one of these improvements that are not disputed by men of the very first authority in the Profession. Thus with regard to the specific effect of mercury in arresting inflammation in the subacute or chronic form, it is now upwards of sixty years since not only this power was distinctly stated to exist with regard to subacute inflammation of the liver, but the generality of the principle, and its applicability to the same forms of inflammation in almost every organ of the body, was very forcibly insisted on by Dr. Robert Hamilton, of Lyme Regis. We will venture to say, that there is scarce a city in these kingdoms in which many most respectable practitioners might not be found who would hold in ridicule the idea of its want of efficacy in such circumstances. It is stated in an excellent article on inflammation by Dr. A. Crawford and Dr. Tweedie, in the *Cyclopædia of Practical Medicine*, that “subsequent experience has amply confirmed the practical deductions of Dr. Hamilton as to the efficacy of calomel and opium in the treatment of inflammatory diseases;” yet Dr. Alison says, that “in the opinion of many of the best informed members of the Profession there has been much exaggeration in all these statements,”* and talks of the remedy in every way so slightly, that the young medical practitioner, who must

1,200,000 cases; and if only one-twelfth of these are admitted to Hospital, we should have annually about 100,000 cases under observation in these kingdoms; numbers which, if their symptoms were daily noted under a uniform system, would, before many years, yield the richest results in prognosis and treatment.

* *Cyclopædia of Practical Medicine*, vol. i. p. 96, article, History of Medicine.

always look to authorities as his guide, would certainly be disposed to place little reliance on its virtues. Again, with regard to the specific effect of tartar-emetic in large doses frequently repeated—this is so remarkable in many cases of acute rheumatism, that in those in which it is applicable no remedy at all appears to approach it in efficacy ; and in our experience of it nothing could be more distinct than the fact, that if it produced nausea or diarrhoea, it in general did no good, while if this symptom did not attend its exhibition, the only other effect that was observable was a rapid removal of all the rheumatic action. We have had lately in the Limerick County Infirmary a young woman in acute rheumatism, who was admitted in excruciating agony of three weeks' duration, and who walked home at the end of a week from her admission, without the slightest trace of her complaint, though the only medicine she took during her stay was a grain of tartar emetic every hour, and the only symptom it produced was a removal of her sufferings ; yet Dr. Alison* seems to think, that this medicine cannot produce any effect in inflammatory diseases, except by inducing nausea, though the disadvantage of a want of "tolerance" of the medicine has been particularly insisted on by nearly all its advocates.

Surely these questions *do* admit of a distinct solution ; surely it would be possible, by trials upon large numbers, conducted under an uniform system, to determine the question definitively, what epidemic constitution, or what combination of symptoms in fever wine is useful in ; whether mercury has or has not a specific action in any particular stage upon subacute or chronic inflammation existing in any particular organ ; or to pronounce upon the amount of good that tartar-emetic is capable of effecting in acute rheumatism and other inflammatory diseases, and whether or no its asserted specific action on them is aided or interfered with by the occurrence of diarrhoea, nausea, or vomit-

* Cyclopædia of Practical Medicine, vol. i. p. 96, article, History of Medicine.

ing? The questions we have raised are not one-hundredth part of those of a similar kind that might be asked respecting the influence of particular modes of treatment in particular diseases. To all of which the answers are equally unsatisfactory. Thus it is that the young physician is blown about by every wind of doctrine; authority contradicts authority; and if the public but knew the hard card he has to play in his early career, and the vague and indefinite balancing of arguments for or against a particular mode of treatment, to which, in spite of himself, he is driven in several critical and dangerous circumstances, they would perhaps be more disposed to indulge than censure the apparent want of success that sometimes attends his efforts.

Besides the disadvantage of our finding many questions of as great importance as those we have alluded to unanswered, or without any definite answer, we continually meet with expressions in medical works so extremely uncertain and vague, that, in the consideration of any particular case, it would be impossible for the student or young practitioner to guess what evil tendency is most probable during its progress, or what complication he ought to be more strictly on his guard against. The terms, "very frequently," "very rarely," "generally," "not unfrequently," "sometimes," however useful and necessary in general descriptions, have this inconvenience, that their meaning varies with the temperament of the person to whom they are addressed. They ought never, therefore, entirely take the place of phrases of measurement. The absurdity of such a practice would perhaps best be shown by supposing it to exist in other sciences, in astronomy, for instance. The theory of the lunar motions is one of the most intricate and complicated in all astronomy, and its reduction to the general principle of gravitation, in all its details, has given more trouble to mathematicians than almost any other question in that science. Indeed, the laws of its principal irregularities were discovered by patient observation long before theory accounted for them, and her place at any moment can now be predicted within a few seconds of space. Now,

what would be thought of the astronomer who should content himself with describing her motion in general terms, and say, “The motion of the moon is subject to great irregularities; *sometimes*, in her course to the eastward, she passes very near the planet Venus, but *much more frequently*, a considerable distance from it; *occasionally, however*, she passes over it, and then the effect is very pretty. This phenomenon is called an occultation, and occurs *very often* with the fixed stars, but is *more rarely seen* among the more distant planets,” &c., &c. This, which is a mere star-gazing description, is not farther below the true science of astronomy, than medical science, in its present condition, is below what it will certainly become when cultivated universally on proper principles.

It is extremely melancholy, indeed, to consider the loose, hypothetical, and contradictory answers which we daily receive to many questions in medical science, to contrast them with those we should receive to analogous questions in the sciences which concern the movements and properties of mere inert matter, and to observe the precision, accuracy, and strictness by which the latter are usually distinguished. The most pointed difference between them, however, we should find to be this, that in the former, in almost all questions of past observation, the person questioned generally refers you to his memory for information, and if you are not satisfied with that, you have none better to get; the latter refers you to his tables, with which you cannot help being satisfied, if you can trust their correctness, that is, if you can believe them to be facts, and recorded with accuracy.

In these observations, and in others previously offered, it will be seen that we have glanced at the methods of investigation that have given other sciences their great superiority over medicine, viz., the submitting to rigid enumeration all things that present themselves to us in the shape of facts, and the complete exclusion of mere opinion or estimate in all matters that admit of measurement, whether in magnitude or frequency, or any

change that admits of strict definition ; in other words, the adoption of “ the numerical method.” But it will be at once objected, that the comparison is not a fair one ; that the difference is extreme between the variety, complexity, and uncertainty that characterize most of the phenomena of the natural sciences, and the simplicity and uniformity that have always exhibited themselves in the physical ; that there is no end to the fluctuations that present themselves in vital actions ; for example, whether in health or disease in different individuals placed apparently under the same circumstances, whether we consider them in their actual degree, progress, or termination, and that these things stand in very forcible contrast to the certainty with which, from the extreme simplicity of its laws, we are enabled to predict the changes, whether of place or form, that take place in mere inert matter. But it must be remembered, that animal bodies are machines of great complexity, in which many processes of different kinds are going on together, under the influence of at least three great principles, the vital, mechanical, and chemical, which interfere with and mutually modify each other’s action, and it will not be considered surprising that the results should exhibit great variety, nay, it would be very surprising if they did not, and it is by no means necessary to suppose a want of uniformity in the action of natural principles to account for such variety as they present to us. Were the solar system, instead of consisting of a certain number of bodies whose orbits do not deviate much from one plane, to consist of a much larger number, placed at every variety of distance, and with orbits inclined to each other at every possible angle,* it is not

* Sir John Herschell, on speculating on the dynamical condition of some of those extraordinary clusters of stars called “ globular clusters,” which are seen in the remotest regions of space, and in which the stars are so thickly set, and their number so great, that they cannot be counted by hundreds, supposes some conditions under which the individuals of a “ globular cluster” might maintain themselves as a system, and describe each a regular curve, under the same laws as prevail in ours, without being precipitated to the centre of the mass. Lardner’s Cyclopædia, Astronomy, page 415, note.

impossible to conceive the bodies of such a system moving each through its course under the same principles as prevail in ours, yet, if they were at all closely set, what chance is there that any one of them would trace out a path conformable to any known curve? and when would the character of ellipticity in their orbits manifest itself under such a multitude of perturbations as they would be subject to? Notwithstanding which there can be no doubt, that the paths of such bodies would, in the circumstances we have supposed, amidst much confusion, present several remarkable analogies, and that by long and patient and persevering observation and accurate measurement, a uniformity of principle might be perceived in them, and the law of gravitation eventually deduced, though much more slowly than it was under the less complicated conditions that offered themselves to the attention of Sir Isaac Newton. Besides, in dwelling upon the varieties and uncertainties alluded to, the many striking proofs of a uniformity of principle in natural processes have been too much overlooked. We see facts every day that assure us that nature is acting under laws that do not alter, and the effects of which are only altered by circumstances. Look at the progress of cholera, for instance, and observe what a slight variety of symptoms was produced by so great a variety of circumstances as offered themselves, of climate, of race, and of constitution. Again, if a remedy is proved to have a particular effect on the frame in one country, or one age, it will be found to produce the same in every other, though we may occasionally find it difficult or impossible to produce it in some particular instances. We have no doubt that calomel would salivate in the hottest or the coldest country, or the earliest or the latest ages of the world; and when we meet an individual in whom we find it difficult to get up its specific action, we do not at once conclude that the general law is false, but that its tendency is baffled by some unseen cause, which careful observation may perhaps yet detect. This discussion might be extended, but enough has been said to show that in the natural as well as the physical

sciences the laws that govern natural processes are general and constant. Indeed the contrary opinion would be equivalent to saying that like effects do not follow in like circumstances, the opposite of a truth which, as it has not been derived from any reasoning, so neither will any reasoning overthrow it. It is evident that our being shut out from a complete knowledge of all the circumstances of each case is the whole cause of our uncertainty in these sciences, and that the laws that regulate them are quite as general, and therefore, however complicated, admit of the same mode of investigation as in other sciences. It must not be forgotten, too, that in physical science, until these modes of investigation were adopted, we could not have obtained the same proofs of uniformity we now possess. There was a time in chemistry when it might be fairly asked, if nature was uniform, or acting under uniform laws? Astronomy, perfect as it is now, has had its days of wild speculation and extravagant error; and with regard to the natural sciences, no one can doubt, that if we could only ascertain all the conditions of each case, with the exact number and force of the influences that guide any process to its end, we should be able to predict the event with as much certainty as we can now foretell the place of any of the heavenly bodies at a particular hour, or the chemical result of a particular mixture.

Such a certainty as this, however, is for obvious reasons not to be hoped for, and it is clear there can be even no approach to it, except by an accurate record, and classification of all the phenomena of disease. It is vain to trust to one's memory for this purpose, and nearly as vain to trust to that irregular unmethodized custom of noting them, that has hitherto prevailed, a custom that makes it as easy now to begin to collect facts anew under a systematic and general arrangement, as to attempt to reduce to order the enormous, chaotic, and, in most respects, imperfect heap of materials that form the great bulk of medical record. The "numerical method" then, is the only one medicine can look to with any hope of attaining certainty as a science,

and when we consider the many improvements that have been made within the last twenty years, the mode in which these have been affected, the growing disposition to hold hypothesis in distrust, and to rely rather on well ascertained facts, and, in particular, the exceedingly practical and valuable conclusions that have followed in various branches of it from even a limited application of this course, it cannot be doubted that the science of medicine is on the eve of a great and mighty revolution. For our own parts, we have been for years of opinion that the system of preserving the statistics of symptoms and treatment of disease under a uniform plan, will at no distant day supersede all others; and we have not the slightest hesitation in expressing our conviction, that this method opens a field for discovery in medicine, which would yield the richest fruits, and yet is almost completely untouched. We are convinced that in the prognostic of acute diseases, it offers application of the theory of probabilities so important, that in after times people will be astonished at our neglect of them, and that in treatment it will lead to conclusions so exceedingly definite and valuable, that when they come to be developed, there will certainly be no mincing of terms with regard to those respectable members of our Profession who are at present so unwise as to record their opinions against it.

Indeed the arguments on that side seem already in a great measure to have subsided; some excellent articles have appeared on its merits in different periodicals, and there is daily a strong and growing conviction in its favour. It might, therefore, seem unnecessary to take the subject up again, but we are induced to do so, partly because we apprehend that in some of these articles, however otherwise excellent,* there is rather a limited representation of its capabilities; and partly because we are of opinion, that, in the present state of the question, a few practical examples

* See an admirable paper on this subject by William A. Gray, Esq., published in the second volume of the *Journal of the London Statistical Society*.

of its utility in medicine would have more weight with the medical Profession than the best theoretical reasoning.

It is one of the characters that attend the successful progress of any science, that its results take us by surprise, that they arise from facts which seem to bear but little relation to them, and in general are of a nature very distinct from any we had been led to anticipate. Hence, it will not be considered surprising if we should at present be unable to predict the exact nature or importance of the conclusions to which strict investigation in medicine may eventually lead us, and the argument with regard to such of its applications as we have no examples to offer on, will be one of analogy. This is more especially the case with regard to the application of the theory of probabilities to the prognostic in individual cases of disease, a most important subject, one in which almost nothing has yet been done, and the careful prosecution of which would often, in doubtful cases, relieve the mind of the physician from much torment. We shall therefore offer some special examples of the result to which this theory sometimes leads in other sciences, to show that its application to medicine, whatever it leads to, will not be fruitless. We shall next give some instances in which the most important discoveries were made or missed in other sciences, by attention to, or neglect of, the “numerical method;” after which we shall give some remarkable instances of the important conclusions to which it is capable of leading in medicine itself; and, finally, we shall endeavour to remove some specious objections, which would not be of much importance, except for the respectable quarters they come from.

Speculations as to the probable duration of the life of a given individual may be divided naturally into two great classes; first, those in which a few personal circumstances only are considered in relation to the event; secondly, those in which it is necessary that all the circumstances should be so considered; the first refers to persons in a state of health, the second to those labouring under disease; the first form a subject for the

prognostic of insurance companies which, in forming an opinion, in general assume, that all other circumstances are the same, except age ; the second, form a subject for the prognostic of the physician, who, in forming his opinion, must take all the circumstances of the case into account, and compare them with his experience of the same circumstances in other persons, and with his memory of the event to which these circumstances led. Now suppose there are 1,000,000 persons of a given age, and that the question is, what is the probability that any given individual of this number will be dead at the end of thirty days ? This probability would be given according to the usual rule, by a fraction having for its numerator the number out of the above that is found by experience to have died at the expiration of this period, and for its denominator the whole number observed upon ; and the value of this fraction would determine the rate that any individual of them ought to be charged for the insurance of his life for thirty days. If we now suppose the whole of this number of persons to be attacked by fever, and the same question is asked, it is obvious that the numerator of the fraction will become much larger, because a greater number of persons in fever will die before thirty days than of persons in health. The fraction, however, can never become greater than unity, because the number that die out of a certain number in any specified time can never exceed that number ; in other words, the numerator can never exceed the denominator, though it is possible it may equal it. Here too it is clear that the value of the fraction would determine the rate that any one of these individuals ought to be charged by a company, supposing any such to exist, for the insurance of his life through fever, and this rate would of course be much higher than the other. But again, out of the above number of cases of fever a certain proportion would be found presenting through their whole course symptoms that were seldom or never found attended by a fatal result ; and the fraction resulting from these cases would not differ much in value from that deduced from the observa-

tion of persons in health, while, on the other hand, we should find a certain portion of them presenting a combination of symptoms from which recoveries were very rare, and which therefore would yield a fraction differing little in value from unity or a total mortality; the simple circumstance then of a person being in fever is not sufficient to determine with closeness the probability of his death or recovery, and if the question was an insurance on his life through his illness, we might charge him a great deal too much or too little, according as he happened through the course of his disorder to be affected with mild or dangerous symptoms; the million of cases of fever would therefore have to be divided into several classes, each of which would be characterized by certain combinations of symptoms, and would yield a fraction indicating the degree of danger attending such combinations respectively. We should thus have a number of fractions varying in value, from the fraction of health to that which approximated to unity, or indicated the highest mortality; and if our classification was so minute, that the individuals of each class presented symptoms identical in number and degree, and that they were sufficiently numerous, these several fractions would be unchanging in value, and might be depended on. On calling to mind how very ignorant we are of the value of any one of these fractions—fractions the real value of which might be determined within very narrow limits, and that, too, by means of facts which are every day forcing themselves on our attention; symptoms which harass us by their dangerous associations and threatening aspect, and which, nevertheless, we obstinately refuse to record, except in the fleeting tablet of our memory; on comparing this ignorance with all that has been done to ascertain the amount of human mortality in a state of health, it is surprising to reflect how much will be undertaken for the sake of making money, and how little for the sake of preserving life. Yet it is obvious that if the value of these several fractions was ascertained, the same principles that are every day applied in hygienic medicine, might be applied in searching out the

causes of a higher mortality among those symptoms and circumstances with which it was found associated; and this systematic attempt to remove or lessen them would in all probability be attended with as much success, and certainly with infinitely more than can ever be hoped for under the uncomparing, vague, and imperfect modes of investigation we at present adopt. It would be no small matter, too, as regards the personal comfort of the physician, that the danger of his patient would in most cases be expressed intelligibly in numbers, instead of having his mind continually on the rack, and perhaps often most harassed in circumstances in which the danger was rather apparent than real.

These observations serve to point out some obvious applications of the theory of probabilities in medicine; there are others, however, of a much higher order, for which it offers numerous applications, the nature of which can scarcely be conceived in the present low state of our notions regarding it. We shall therefore give some examples from other sciences, of the degree of probability that may be attained in circumstances in which certainty is impossible; and though they are such as require a knowledge of the higher branches of mathematical analysis, and will only be properly appreciated in medicine when a better order of things has arisen, they must be considered of extreme importance, as their tendency is in many instances to investigate causes. The following passages are taken from a very interesting article on the Theory of Probabilities, in the *Dublin Review* for July, 1837:

“ In every branch of inquiry which involves the actual use of our physical senses, the repetition of a process will always afford a series of discordances varying in amount with the method used, the skill of the observer, and the nature of the observation. If the observed discordances present anything like uniformity of character, we are naturally led to conclude, that they are not, properly speaking, the results of errors of observation, but of some unknown law, by which the predicted or

expected result is modified. If the discrepancy merely arise from errors of observation, we must suppose that it will be sometimes of one kind, and sometimes of another; sometimes producing a result larger than might have been expected, and sometimes smaller. Now, having noticed a set of observations which do not agree, it is one of the first objects of the theory to settle what presumption should exist that the variations are accidental, (that is, totally unregulated by apparent or discoverable law) or that they follow a law which then becomes the object of investigation; the case taken by Laplace as an illustration will do for the same purpose here. It was suspected, that independently of local fluctuations, the barometer was always a little higher in the morning than the afternoon. To settle this point four hundred days were chosen, in which the barometer was remarkably steady, not varying four millimetres in any one day. This was done to avoid the large fluctuations which would have rendered the changes in question, if such there were, imperceptible. It was found that the sum of the heights of the barometer at nine in the morning, exceeded the sum of the heights at four in the afternoon, by four hundred millimetres; or one day with another by a millimetre a day. But what can we infer from such a circumstance is the first suggestion? A millimetre, or about the twenty-fifth part of an inch, is so very small a variation, that, considering the nature of the observation, and the imperfections of the instrument, it seems at first perfectly admissible, that mere instrumental error might have occasioned such a discrepancy. The theory of probabilities gives an entirely different notion: it appears, that it is many millions to one against such a phenomenon presenting itself, upon the supposition that it was produced by nothing but the casual imperfections of the instrument. A very great probability was therefore given to the supposition, that there really exists a diurnal variation of the barometer, in virtue of which *cæteris paribus* it is a little higher at one particular part of the day than at another.

“ In this way Laplace actually used the theory of probabilities as a method of discovery. He expressly affirms* that the irregularity in the lunar motions, which he afterwards showed to depend on the figure of the earth, was pointed out to him as not being of a merely casual character, by his having ‘*soumis son existence au calcul des probabilités.*’ Of another of his most brilliant results, he says as distinctly (p. 356), ‘*L’Analyse des Probabilités m’a conduit pareillement à la cause des grandes irrégularités de Jupiter et de Saturne.*’ ”

The second instance we shall give is nearly equally remarkable. It was an application by the same mathematician, Laplace, of the doctrine of chances, to show the probability of two comets being the same, from a near agreement of the elements, which are five in number, viz., the perihelion distance, the place of the perihelion, the place of the node, the inclination of the orbit, and the motion being direct or retrograde. It was assumed, that the number of different comets does not exceed one million ; a limit probably sufficiently extensive. The chance that two of these differing in their periodic times, agree in each of the five elements, within certain limits, may be computed, by which it was found to be as 1200 to 1, that the comets of 1607 and 1682 were not different. Halley had predicted with confidence its return in 1759 ; and as no one then had any notion that the probability of this was so high as we have just stated it, the question of its reappearance was looked on with intense interest all over Europe, and all the influences to which it would be subject in its course, discussed by Clairant, who had undertaken this most difficult and intricate piece of calculation. He found that the action of Saturn would retard its return by 100 days, and that of Jupiter by no less than 518, making in all 618 days, by which its expected return would be delayed. It was stated as the result, that its perihelion passage would take place about the middle of April, 1759, but that the limits of error might amount

* *Theorie Analytique des Probabilités*, p. 355.

to a month at one side or the other. It actually happened on the 12th of March in that year.

It must be observed here, that in the theory of probabilities, the question as to the identity of these two comets resolved itself into the question, whether the discrepancy of the elements was owing to the comets not being the same, or to errors of observation. Here, therefore, as in the case last given, the application of the theory was to the investigation of causes, an application widely different from the ordinary one of averages. The intelligent practitioner will be at no loss to see numerous instances in medicine where the same theory might be applied with success to most important questions, if the facts necessary to the calculation were regularly collected under some uniform plan.

The discovery of the velocity of light, by the eclipses of Jupiter's satellites, is a very remarkable instance of a most brilliant discovery, and one totally unlooked for, arising out of the application of the numerical method to determine the times of their future eclipses. Roemer, a Danish astronomer, apparently with this sole view had obtained the recorded eclipses of each satellite for many years, and having added up the observed intervals, obtained an average interval for each satellite, which he thought would give a tolerable approximation to the time of its future eclipses. Having done this he set about observing what agreement there was between these predicted times and observation, and was surprised to find considerable discrepancies. The following were the results :—Whenever the earth was at its average distance from Jupiter, the eclipses were observed to occur exactly at the average time ; whenever the earth was at less than its average distance *they were seen sooner*, and whenever it was more than its average distance, *they were seen later*, but it was observed that they never anticipated or fell behind the average time by an interval of more than eight minutes, and, in point of fact, he found that by making an allowance for the variation of distance one way or other from the average distance, he could predict the times of the eclipses to a few seconds. The

inference was obvious, that light took more time to go over the greater space, and less to go over the lesser, but the velocity assigned to it by these observations was so great (192,000 miles per second) that the truth of the observation was doubted by many, until the discovery of the aberration of light, by Bradley, from observations on the fixed stars, which brought a complete and most satisfactory confirmation of it. "The velocity of light," says Sir J. Herschel, "deduced from this last phenomenon, differs by less than one-eightieth of its amount from that calculated from the eclipses, and even this difference will, no doubt, be destroyed by nicer and more rigorously reduced observations."

The application of number to all those circumstances that admit of measurement by it, would indeed appear to be of the two rather more necessary in the natural sciences than in the physical. If there are many things in them about which we must per force rest in a state of uncertainty, it would appear only the more essential for us to apply a system of measurement at least to such points as admit of it, and not to leave the whole to assumption or conjecture. A very striking instance of the extreme danger of this, even in the physical sciences, was shown in Sir Isaac Newton's *Optical Researches*. In this work, in which he made the most brilliant and beautiful discoveries, and during the prosecution of which he exhibited an almost superhuman sagacity, he nevertheless committed an oversight which has astonished every body; and this oversight arose from a neglect in almost this sole instance of the principle of admeasurement. He took it for granted, from his observations of the spectra produced by prisms of glass of different kinds, that the length of these spectra was always exactly proportional to the degree of refraction suffered by the mean ray. In other words, that the dispersion of light was always, and in all substances, proportional to the refraction of it. This conclusion has always been considered the more astonishing, inasmuch as the opposite one seemed, in almost every one of his experiments, to court his attention, and as it were force itself on him, and he had even a

direct object in establishing it in preference, for if he could find any substance that gave a longer spectrum than another, when the refraction of the mean ray in both was the same, the improvement of the refracting telescope, with which view many of the experiments were instituted, would follow as a necessary consequence. Had Sir Isaac Newton subjected to accurate measurement the lengths of the coloured spaces in the spectra produced by different substances, and the lengths of the spectra themselves when the refraction of the mean ray was the same, he could not have been so deceived. As it was, after an infinity of labour, he came to the conclusion, that “the improvement of the refracting telescope was desperate;” and left to his countryman, John Dolland, and to Mr. Hall, the glory of inventing, in a few years afterwards, the achromatic telescope, and, that too, by means of the very same steps which he had overlooked or neglected.

It would be easy to multiply such examples, but this paper is swelling to such a size that we must proceed.

That we may more clearly understand the advantage of the numerical method to medicine, let us consider for a moment in what it differs from individual experience, upon which physicians rely in their ordinary practice; what objections apply to it, do not equally apply to the latter, and whether it does not sometimes lead to influences of surpassing importance, which individual experience could never have suggested?

When in those diseases, the cause or essential nature of which is ill understood, a physician prescribes a particular medicine to allay any morbid symptom, or suppress any disordered action of the system, and finds that it has effected the desired object, he resorts to a similar medicine for the cure of a similar disorder in another person, and notwithstanding his knowledge of the possibility of some idiosyncrasy, or peculiarity of habit, entertains anticipation of a favourable result, just proportioned to the amount of his previous experience.

When he has prescribed the same remedy under the same circumstances fifteen or twenty times with uniform success, he

forms a confident conclusion in his mind as to its merit and applicability.

If, on the other hand, he has had apparent failure, or others in his neighbourhood have had failures, he is anxious to extend his trials and test the remedy by numbers. This, if correctly done, is the adoption of the numerical method in individual experience ; it is, in truth, an imperfect mode of endeavouring to ascertain the universality of a fact.

He now finds by his extended personal experience, that the failures occur once in every eight or ten cases. His next effort is, to ascertain whether there be anything peculiar in the cases of failure, any symptom not observable in the others, and whether in these particular cases a different treatment may not answer ; and when he has seized upon some symptom which he supposes to be peculiar, and adopted some new plan of treatment, he awaits for months or years until he meets with a sufficient number of similar cases to test the truth of his supposition and his new plan of treatment. Here again is an imperfect adoption of the numerical method, an effort to arrive at a correct conclusion by a review of the practice of many years.

Excluding the few cases in the practice of medicine where the physician is fully cognizant of the immediate cause of disease, and thence infers an appropriate remedy, all his treatment of disease is founded on an imperfect recollection of past experience, or from some inductive reasoning which has from time to time gone on as a result of it. But as facts collected through a series of months or years, and consisting of an infinite variety of details, could be recalled by no memory, or their complicated relations embraced by no mind, we have, as a necessary result, endless differences and contradictions in the experience of individuals with regard to the same subjects. By the numerical method, the experience of the past is also recalled, but recalled correctly, because all the facts to which it relates have been classed in recording them. The number of all the individual facts can be counted, their relative frequency compared in cases of a parti-

cular class, and their relative value determined by a comparison with facts of other classes which have also been reduced to similar elements. The physician who adopts the numerical system leaves no consideration out of view which could influence the mind of the physician who rejects it ; he takes all the symptoms, favourable or otherwise, into consideration, he estimates them correctly, because he refers to his tables, which will retain the facts, rather than to his memory, which will not retain them ; and when led to apply any treatment, arising out of inferences of some general law, of some universal fact, his application of such treatment is influenced and qualified by any known or supposed individual peculiarity in the case, every idiosyncrasy of habit, any recognized condition of disease, as fully as if he had no statistical records to direct him.

To illustrate more clearly the value of the system we are advocating, let us for a moment contrast the unsatisfactory prognosis which, in ordinary practice, a physician forms, say of fever in a young woman on its fifteenth day, with that which is deduced by the statistician. The former draws some confused inferences or conjectures from his recollection of patients similarly circumstanced, and their results, but can arrive at no conclusion upon which he can rest with any confidence. The physician who has studied the statistics of such cases, even imperfectly as our present meagre records will permit him, on the other hand, can reduce his prognosis to some standard, the proportions of which can be closely estimated.

He sees that the patient is twenty-one years of age, and he finds the chances of recovery at that age are nearly twice as great as at forty-one.

He sees that the patient is a female, and finds that it gives one chance in three more of recovery than if a male.

That she is passed the fourteenth day, or second week, which is the fatal week of fever.

He can take a multitude of other circumstances into consideration, of the relation of which to death or recovery his tables

furnish him with equally exact amounts—the presence of deafness, the absence of subsultus tendinum, the moderate rate of the pulse at that period, the state of the sensorial functions ; all these serve more or less to influence his conclusion, and to give confidence to his anticipation and prediction of the result.

But the most striking and extraordinary illustrations of the influence of the numerical method on the practice of medicine, are to be found in those instances in which it has instantaneously, and by the tot of a sum, dissipated the universally received doctrines of an age in particular diseases—doctrines derived from the patient researches of a Hunter, and supported by the observation and experience of an Abernethy. It is needless to state, that mercury, up to a very recent period, was considered essential to the cure of syphilis, and those diseases, however otherwise undistinguishable, which got well without mercury were not deemed syphilitic. They were the pseudo-syphilitic diseases of Abernethy. This doctrine of syphilis and pseudo-syphilis was so specious that it threw an effective bar in the way of arriving at the truth by any inferences from individual experience. As soon, however, as an inquiry on the subject by the numerical method was instituted in the army, by Sir James Macgregor, a revolution was at once effected in the medical doctrines of the day. It was found, so far from mercury being essential to the cure of syphilis, that in 1940 cases treated without it, the cure of primary sores was effected in twenty-one days, on an average, in such as were unaccompanied by bubo, and in forty-five days, on an average, in those which were accompanied by it, while in 2827 cases treated by mercury, the average period of cure, when uncomplicated, extended to thirty-three days, and when complicated with bubo, to fifty days. It was ascertained, in fact, that every form of syphilitic sore may get well without mercury, and that primary syphilitic sores got well faster without it. These results would necessarily have entirely interdicted the use of mercury in the treatment of syphilis, had the inquiry gone no further, but in following it out it was ascertained that in the

1940 cures without mercury, secondary cases occurred in 96, while in the 2827 cases treated with mercury, only 51 had secondary symptoms. It hence appears that although primary syphilitic sores get well faster on the non-mercurial treatment, the security from secondary symptoms is less than when mercury is employed. The practical inferences from these facts are obvious :

1st. That it is better to employ mercury in the cure of primary syphilitic sores, although the cure go on more slowly, as it gives a greater protection from secondary symptoms.

2ndly. That as the disease may be cured without it altogether, there is no necessity and can be no object in carrying the use of mercury beyond slightly affecting the mouth.

3rdly. That for the same reason, where, from general delicacy of constitution or of any particular organ, the employment of mercury may be attended with hazard, it is not warrantable to use it at all.

The little approach that has been made to a scientific treatment of fever, or indeed of any other epidemic not originating in known local lesion, from the earliest age at which medicine became a study to the present hour, suggests irresistible reasons for believing our method of investigating its nature or testing the value of treatment is erroneous, and as little likely to lead to a true knowledge of the disease or its cure in future ages as it has proved to be in the past. The same may be said, even more forcibly of cholera, a frightful disease, which made a waste of human life in its progress round the globe sufficiently terrific to waken up all the energy of civilized man in the discovery or application of some effective remedy. It visited all nations, physicians had abundant practice, and the ingenuity of genius, and the boldness of speculation, and the daring of ignorance were exhausted in their efforts to devise a cure ; yet what has been the result ? absolutely that we have arrived at no determinate conclusions whatsoever regarding an appropriate treatment, if I except what little has been accomplished by the

numerical method ; and that the question regarding the merits of calomel, or opium, or brandy, or cold water, or blood-letting, or emetics, is now as wide of a satisfactory answer from the faculty in this country as when the disease first invaded us at Sunderland. From the varying nature of the disease, in fact, it was morally impossible that any individual member of the Profession could arrive at correct inferences from his own practice merely, and it was equally impossible to draw correct inferences from the collected experience of many, the symptoms not having been recorded or the treatment pursued on any concerted plan. Let us, however, see what, under the same difficulties, even a very imperfect and limited adoption of the numerical method accomplished in the treatment of this disease, as far as relates to the merits of a remedy which came highly recommended to us from India ; but at a very early period of the epidemic lost reputation in most places, and was finally almost discarded from practice.

During the prevalence of cholera in Limerick, one of the writers of this article was first attached to St. Munchin's Hospital, where he tried every mode of treatment suggested by the Profession, with so little apparent success, that he lost all faith in the influence of medicine. In this frame of mind he was transferred to St. Michael's Hospital, where the admissions were very numerous and the mortality alarming. He there found the calomel practice pursued with much more boldness and resolution, than any results he had witnessed could have induced him to adopt.* As it was little complicated with the use of opium or any other medicine which could materially interfere with its operation, he determined to become a mere observer of its results for one month, that he might obtain some numerical evidence of the good or evil which at least one powerful remedy was capable of effecting. To arrive at more accurate conclu-

* From $\Theta j.$ to $\Theta ij.$ were given every half hour until the symptoms gave way or death took place.

sions, he noted in each case, on admission, the presence or absence of the pulse at the wrist, and took care that the registrar or apothecary did the same whenever he was absent. He also, in conjunction with the other physicians, endeavoured to prevent as much as possible the admission of patients in the mere premonitory stage, which, however, was not always possible. At the termination of the month he found the gross amount of deaths was forty-seven, out of 165 cases, or less than one-third, which was not far away from the general mortality in most countries which had been visited by the disease. He had here a proof that the numerical method, if applied only to the admissions, general treatment, and gross results, could lead to no practical inferences; for as the proportionate mortality in St. Michael's Hospital was nearly the same with the mortality in every other hospital in the kingdom, he could deduce nothing either favourable or unfavourable to the treatment from any comparison. But his inquiry had a closer application, inasmuch as the patients were classified on admission into those not yet in collapse, or who had a perceptible pulse at the wrist, and those in collapse whose pulse was not perceptible. On casting up the tables and ascertaining the amount of mortality in these separate classes, he was perfectly astonished to find, that in the first class, affected with rice water vomiting, and purging, and suppression of urine, there were only five deaths out of 119 cases, while there were forty-two deaths out of the forty-six cases admitted in a state of collapse. He had here at once evidence sufficient to lead to the most certain and confident conclusions. Cholera, so far from being a disease difficult of cure, was obviously more readily and certainly brought under the control of powerful remedies than any other known malady of so formidable a nature, and failures occurred entirely from neglecting to adopt a sufficiently bold and energetic treatment in the early stage; the only one in which the system is susceptible of the action of remedies. So long as the pulse was perceptible at the wrist, the calomel practice was clearly capable

of arresting the disease in at least nine-tenths of the cases; but after the cessation of the pulse it did nothing, or it did mischief; the recoveries being perhaps less than might be effected if the cases had been wholly abandoned to nature until the period of reaction. These inferences were afterwards amply confirmed by the reports from other hospitals, in which the same notes of the condition of each case on admission were registered, and the same treatment adopted. The following are the reports referred to:

The Strand Hospital, from June 8th to June 22nd, 1832.

Admitted.		Died	Mortality.	Total Mortality.	Proportion admitted in Collapse, to total Admissions.
In the primary stage,	24	4	17 per cent.	} 48 per cent.	45 per cent.
In collapse, . . .	20	17	85 per cent.		
	44	21			

St. Michael's Hospital, from June 14th to July 1st, 1832.

Admitted.		Died	Mortality.	Total Mortality.	Proportion admitted in Collapse to total Admissions.
In the primary stage,	74	12	16 per cent.	} 51 per cent.	52 per cent.
In collapse, . . .	80	67	84 per cent.		
	154	79			

The Nunnery Hospital, from June 8th to June 22nd, 1832.

Admitted.		Died	Mortality.	Total Mortality.	Proportion admitted in Collapse to total Admissions.
In the primary stage,	128	7	5½ per cent.	} 44 per cent.	54 per cent.
In collapse, . . .	154	117	76 per cent.		
	282	124			

St. John's Hospital, from June 8th to June 18th, 1832.

Admitted.		Died	Mortality.	Total Mortality.	Proportion admitted in Collapse to total Admissions.
In the primary stage,	419	29	7 per cent.	} 33 per cent.	39 per cent.
In collapse, . . .	264	185	74 per cent.		
	683	224			

St. John's Hospital, from its reopening, August 21st, to its final Close, September 13th, 1832.

Admitted.		Died	Mortality.	Total Mortality.	Proportion admitted in Collapse to total Admissions.
In the primary stage,	59	8	13½ per cent.	} 42½ per cent.	51 per cent.
In collapse, . . .	61	43	70 per cent.		
	120	51			

Barrington's Hospital, from September 23rd, 1832, to April 17th, 1832.

Admitted.		Died	Mortality.	Total Mortality.	Proportion admitted in Collapse to total Admissions.
In the primary stage,	114	} 121	* *	55 per cent.	47½ per cent.
In collapse, . . .	103				
	217	121			

Excluding Barrington's Hospital, in which the deaths of those admitted in the primary stage and in collapse were not

* The deaths of those admitted in the primary stage in this Hospital, and in the stage of collapse, were not distinguished.

distinguished, the following table gives a summary of the whole :

General Summary.

Admitted.		Died	Mortality.	Total Mortality.	Proportion admitted in Collapse to total Admissions.
In the primary stage,	704	60	8½ per cent.	} 39 per cent.	45 per cent.
In collapse, . . .	579	439	76 per cent.		
	1283	499			

The general correspondence of these reports is a striking proof of the truth of the inferences to which they lead, the mortality in the primary stages of cholera not having in any instance exceeded 17 per cent., and in the collapse being sometimes 85 per cent., and never having been less than 70 per cent. This latter very decreased amount of mortality was observed when calomel and all other powerful remedies were wholly suspended during collapse, as useless in that stage, and tending to mischief afterwards ; when, in short, little was done for them beyond giving an occasional dose of mild cordial, and gratifying their thirst by abundance of cold water.

As this method of investigation was not applied to any other remedy but calomel, which happened at the time to be the popular practice, it could not be discovered, whether other influential remedies, as opium, tartar-emetic, hippo, &c., highly applauded by individual practitioners, bore any comparison with it in value. It hence became of greater importance to ascertain whether the salivation which calomel induced (in itself a very objectionable consequence) was necessary or could be avoided. As most persons who were salivated recovered, it was very generally held that the salivation was the means of cure, and hence salivation became always the object. It is unnecessary to take up the reader's time with the inquiry which was instituted to determine this question, but simply to state, that it was found salivation was wholly unnecessary for the cure of the disease, and always

resulted from exhibiting the calomel, after the true cholera symptoms were obviously arrested ; no salivation occurring, however great the quantity of calomel given, if its use was suspended so soon as the vomiting, purging, and cramps, or the progression to collapse ceased. It was found, in fact, that patients did not recover because they were salivated, but they were salivated by the calomel already unnecessarily administered because they recovered and lived to be so.

These imperfect illustrations of the accurate conclusions to which the numerical method may lead in medicine, and above all in those diseases which have equally baffled the industry of the morbid anatomist, and the speculations of the most philosophic theorist, may suffice in some degree to show what might be accomplished by a perfect and well considered application of it in the investigation of disease. If it be true, as has been said, that epidemics, such as fever, or cholera, are continually varying in character from age to age, and from year to year, and that inferences drawn from the results of treatment in those which are past, can seldom or never strictly apply to new ones, it is obvious those variations of character must prove more perplexing to the physician, who is guided by the vague impressions of individual experience, than by him who can refer to the general laws, governing the course of past epidemics, and within an incredibly short period, test the connexion of those laws with the present ones, throughout every hospital in the kingdom. But this supposition of a constant change in the character of recurring epidemics, is to suppose those changes are without limit, which is hardly probable, and if not within limit, the same must come round again and be at once recognized by the medical statist. It may even be ascertained from the statistics of these epidemics in the progress of time, that they are subject to some general law, and recur at stated intervals, and in certain succession to other epidemics, and so pass away and come round again like the eclipses of the moon, the regular succession of which, in a particular order, was discovered by constant observation, many

ages before they were known to be caused by the passage of the moon through the earth's shadow, and even before the earth itself was known to be spherical.

One of the most spacious objections to the adoption of the numerical method, and which it is essential to consider most fully, is, that any inferences deduced from observations of the effects of remedies on the mass of the community, or from the average results of disease, varying more or less in every individual, can never apply correctly to individuals, any more than inferences regarding the value of life, or the wealth of an individual can be deduced from the average value of life, or average wealth of the community. This objection would strictly apply if the statistics in the numerical method were simply limited to ages and average results in the one case, or numbers and average wealth in the other. But they are not so limited, but include a record of every possible symptom, or circumstance in each case which could be of importance, or admit of tabular classification. Hence, in estimating the value of a particular life by the numerical method ; not only would the average value of life at his age be considered, but the state of his pulse, respiration, his skin, his digestive organs, and even his temperament would be accurately estimated, and bear their statistical value in the conclusion arrived at. It might appear in such an estimate, that even the colour of the hair or eyes would determine us in assigning a shorter or longer period, or a lesser or greater value to the individual life. It is not meant to be asserted, that all this would give a close approximation to the value of an individual life, that is, the probable duration of life, not the average or commercial value ; but it would be close in proportion to the minuteness, accuracy, and number of the facts or observations from which an inference is deduced, and beyond all measure nearer to the truth than any opinion founded on the strong impressions of mere experience. It is to be recollected, too, that the possession of correct statistical information relating to the nature, tendencies and treatment of any disease, does not at all

preclude the physician from taking fully into consideration every peculiar or extraordinary circumstance or element not noticed in his tables, or exercising that tact which is so essential to the successful practice of the medical art.

Perhaps no circumstance has contributed so much to detract from the merits of the numerical system with English physicians, as the practical results of its adoption by its founder, M. Louis, in his inquiries regarding the advantages of blood-letting in inflammation of the lungs. These inquiries would seem to lead to the absurd conclusion, that bleeding is injurious rather than beneficial in such cases. But not to dwell on the probability that difference of age has a much greater influence on the course and results of disease than we at present attribute to it, it cannot be fairly assumed, as M. Louis has done, that the duration of a disease is any measure of its intensity; the blood-letting diminishes the force and violence of a disease and leads to a successful issue, although it does not at once subdue it; perhaps all is accomplished which the nature of the malady will allow. Many complaints that we look upon as purely inflammatory, have, nevertheless, a specific character, and will progress under any treatment to a given period before we can note any appreciable decline; and it is, no doubt, by some such disposition in pneumonia we are to explain the fact observed by M. Louis, that in individuals bled late, or after the fourth day, the sputa lose their pathognomic character *two hours* after the first bleeding; while in those who are bled early, it never completely disappears before three days. After all, the number of cases from which M. Louis deduced his inferences, was not in any degree sufficient to warrant generalization, though quite enough to awaken our suspicions and induce us to inquire more closely, whether the influence of blood-letting is not at all events somewhat overrated in our present practice. While referring to this subject, it may be observed, that the errors of the statist are errors arising from a paucity of facts, and so long as nature is true to herself must be corrected by the acquisition of addi-

tional facts every day within his reach ; while the errors of individual experience may never be corrected, as it may vary and even conflict in proportion as it extends. What can be more perplexing than the opposite experiences of the most celebrated men, apparently derived from opposite results, with regard to the comparative value of blood-letting and emetic-tartar in inflammation. They, in fact, left out all the qualifying circumstances which influenced the effects of treatment in the practice of each, and the result is, that the inexperienced physician, in his study of authorities, has to select between the experience of Rasi, Laennec, Peschier, Barry, Wolfe, Fontanelle, Téallier, Trousseau, Franc, Dalpech, Lallemand, on the one side ; and Strambio, Felix, Vacquié, Dance, Rostan, Andral, and Bouillaud, on the other !

It will after all be readily admitted, that those discoveries or improvements in medical treatment which arise from the discovery of the causes or nature of disease are much more satisfactory, inasmuch as they are better understood, than any derived from general laws, founded on numerical calculations or comparisons. Thus, when a person complains of throbbing at the temples, ringing in the ears, appearances of motes or flashes of light before the eyes, headach, &c., if it be explained to us, that those symptoms depend upon a plethoric state, or upon increased vascular action in the vessels of the brain, we feel more satisfied in the advantage of depletion, than if we were told that in ninety-nine cases out of one hundred where such symptoms existed, depletion had been found successful in relieving them. In like manner, where Dr. Bateman tells us, that wine may be used in typhus fever, if the tongue be not parched, the skin be soft and moist, and the pulse open and fluent ; and that it is inadmissible when the tongue is parched, the skin dry, and the pulse above 120, with the slightest perceptible sharpness in its beat, it is far less satisfactory to the practitioner, as being an inference from mere individual experience, than when he learns from Dr. Stokes, that excessive debility in fever usually

arises from a softening of the fibres of the heart, indicated by the diminution or cessation of its impulse and sounds, and hence “that the diminution or cessation of impulse of the heart, the feebleness or extinction of the first sound, the preponderance of the second, or the proportionate diminution of both, are direct and nearly certain indications for the use of wine in fever.”

But let it be recollected, that the truth of the supposed discovery of cause and effect in those very cases, and its value as a guide in practice, depends, after all, on inferences from numerical calculations; and so sensible is Professor Stokes of this fact, that notwithstanding the very extraordinary cases which he offers in support of his views, he states in a truly philosophical spirit, that “in the present state of the inquiry, he wishes it to be understood, his observations refer principally to the epidemics of the preceding year, and that further researches must be made, to establish how far this may be applicable to typhus in general.” There is no question in regard to the treatment of typhus fever of so much importance to be determined as the appropriate exhibition of stimulants. The practice has for ages been regulated by the prevailing doctrines, or prevailing opinions of the day, and stimulants were given or interdicted as one plan or the other appeared successful in the individual practice of some leading practitioners. We have no hesitation in saying, that if general experience supports the conclusions to which Dr. Stokes has directed us, respecting the connexion between the physical signs of debility in fever, and softening of the muscular fibres of the heart, he will have accomplished not only the most important, but almost the only real improvement which has been effected in the treatment of that complaint in the history of medicine. But it must be observed, that there is nothing in the numerical method of investigation to hinder Dr. Stokes, or any physician of equal ability, from making this sagacious conjecture; on the contrary, it would, if properly carried out, be one of the most powerful instruments for the suggestion or detection

of causes that could be thought of ; for in the cases just specified, Dr. Stokes could, as a part of the system of marking every phenomenon deserving of notice, have noted the sounds of the heart with the other symptoms, and the appearances and condition of the organ after death. The only difference is, that a sagacious physician might be saved some labour by his tact in hitting off the causes of certain phenomena, while a man of more moderate skill would be only able to ascertain them by cautious induction from large numbers ; besides, until Dr. Stokes's observations have been extensively tested in various epidemics, and his inferences established by numerical calculation, they must remain, like other ingenious medical doctrines, subject to much doubt, and it is possible may be found of very partial application. When correct, there are no doctrines so valuable as the anatomical or pathological doctrine of disease, because they lead to principles of treatment so simply and extensively applicable ; but their correctness, however specious, the connexion of the external physical signs with the internal lesions, and the applicability of certain remedial measures, has to be tested by the numerical system before it can acquire any decided value. On the other hand, it will hardly be denied, that, independent of those doctrines and discoveries, if the numerical method had been resorted to in medical science in past ages, if the experience of the past had been systematically collected, so as to admit of deductions by numerical calculation, in the determination of the question at issue, we should be now in no doubt as to the evidences which indicate the use of wine in fever. Dr. Stokes's own candid admissions bear us out in this assertion. No doctrines seemed more specious, or better supported by facts, than the anatomical doctrines of disease ; those which referred all diseases to visible changes of organs, which taught, that inflammation was the first and principle morbid phenomenon, and that fevers were always the result of, or accompanied with, some local inflammation. Yet Dr. Stokes is of opinion that he could have saved many lives in his earlier practice, if he had trusted less to the

doctrine of inflammation, and *more to the lessons of experience*, given us by men who observed and wrote before the times of Bichat and Hunter, that is, if he had depended on lessons deduced from the experience on numerical inferences of a few observant men, instead of being guided by doctrines founded apparently on anatomical or pathological facts.

It is not, after all, a matter for wonder, that the scientific physician, dazzled by the few brilliant discoveries of cause and effect in disease, and the almost immediate perfection of treatment as a result, should devote all his energies to the investigation of those causes in other diseases whose origin and nature are more obscure, perhaps inscrutable, in preference to a tedious search after general laws, bearing more accurately on masses of men than on individuals, and when most conclusive, and leading to the most successful practice, offering no explanation to the mind. If the motions of the planets, and their orbits, were as accurately known before the great law of gravitation was discovered as afterwards, their position in the heavens at any future time might be as correctly predicted, as it could now ; but the capability of doing so would have been a mere result of experience, and not so gratifying as if deduced from the knowledge of a principle which applies to, and influences all the movements of nature, from the rolling of an apple to the wanderings of the comets. The error committed in these instances is not the application of the mind to the discovery of the causes or essential nature of disease, which in itself is a truly philosophical pursuit, but in doing so exclusively, and in doing so on the assumption of its general possibility. In no instance is a correct philosophical spirit so highly evinced, as in weighing the difficulties to be encountered before adopting a particular method of inquiry, and abandoning it for some more feasible one, when eventual success appears improbable. It is not so much by what is most desirable as by what is most practicable, our efforts should be directed, and when the immediate connexion between cause and effect in disease seems too obscure to

be reached either by the experiments of the physiologist, or the research of the pathologist, when, in fact, it has baffled the inquiring physician for ages, he should be content to direct his attention to the laws which diseased action observes, both under the influence of remedies, and when allowed to run its course uninterruptedly. These laws are always discoverable by the numerical method, when systematically adopted, and if the knowledge acquired is not all that could be desired, the inferences it leads to, are at all events as practical, and founded as strictly in truth, as if the intimate nature of disease was more fully understood.

ART. VIII.—*Propositions relating to Diseases of the Stomach.*

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TORPID DIGESTION.

HAVING already communicated in this Journal my proposition, on irritation of the gastric glands, and on irritation of the mucous membrane, I now proceed, in pursuance of my original intention, to those relating to torpidity of action in the stomach, and I beg the reader to bear in mind, that my object in those communications has been to diagnose distinct affections of the stomach, which have hitherto been confounded, and to describe an appropriate mode of treatment for each. If I have succeeded even imperfectly in a class of diseases in which so much *hit or miss* practice commonly prevails, I shall hope for some indulgence and forbearance from hasty condemnation on the part of my readers, seeing that the value of such propositions is not to be tested by their apparent probability, but by that patient observation of various cases which must be the work of time.

FIRST PROPOSITION.—*Torpidity of digestion is denoted by the following symptoms: 1st, a feeling of distention in the hypochondrium, with an elastic fulness somewhat relieved by*

expulsions of gas from the stomach, which are either insipid or sour and sulphureous; 2nd, palpitations, with slowness or irregularity of the pulse; 3rd, occasional oppression of breathing; 4th, dull pain, or rather weight in the head; 5th, vision affected with motes, and involuntary action of the eyelids; 6th, more or less deafness; 7th, peculiar lowness of spirits, and disposition to exaggerate and brood over the internal sensation produced by the disease.

A Feeling of Distention in the Hypochondrium.—This is frequently the only cause of complaint, but one, the pertinacity of which is a cause of great distress. It arises from distention either of the stomach, or, of the arch of the colon by gas; and the tumour being thus elastic keeps up a constant pressure, affecting more particularly the diaphragm. The necessity of holding up the ribs by means of the intercostal muscles, during the impediment offered to the descent of the diaphragm in each inspiration, causes a weariness of the left side, which, although not amounting to pain, is almost worse. Often have I known practitioners (urged, I suppose by the importunities of patients), after an unavailing employment of purgatives, proceed to leech and blister the hypochondrium; but I need scarcely add with very indifferent effect. The most appreciable benefit is obtained by the expulsion of gas in either direction, and this almost equally whether the seat of the distention be in the colon or in the stomach; as in either case the diminution of the tension is the same. When the stomach expels the gas, it is either nearly insipid or has the taste of a gun barrel, and consists of carbonic acid and sulphuretted hydrogen. This last gas, I have observed, is not produced in the stomach for any considerable time without the symptoms of gastric irritation commencing, while the insipid gas is not necessarily followed by any other symptoms except those of torpidity.

The formation of sulphuretted hydrogen in the stomach, when it does not occur in health, may be explained by the con-

tinuance in that organ of the aliment in an undigested state, and by its passing into putrefaction under the combined influence of heat and moisture. One instance of this production of gas from chemical agencies is seen in the extrication of sulphuretted hydrogen, which takes place when any preparation of iron is taken into the stomach, containing a portion, however small, of iron in the metallic state, from which it appears, that when hydrogen is formed by the action of the free muriatic acid of the stomach on the iron, the sulphur must be there present to combine with it, and the greater number of substances which are usually taken into the stomach, have been ascertained to contain more or less sulphur in their composition.

Palpitations, with Slowness or Irregularity of the Pulse.—The connexion between the stomach and the heart has never been adequately described in any of the systems of pathology, neither has its importance been duly estimated in the explanations given of the effects of poisons. Yet this connexion can be proved in the simplest manner, by feeling the pulse before and after eating or drinking, when the individual has been reduced by previous exhaustion, and by doing it so soon that it cannot be attributed to absorption. The depressing influence of the heart of even slight degrees of flatulence is seen in the intermittent pulse which so frequently accompanies it, and even the certainty of death from taking the corrosive mineral poison, can only be attributed to the influence of the stomach over the heart, from which it results, that the surface of the one cannot be suddenly irritated or disorganized without the other being excited to preternatural activity, to be succeeded by feebleness, and at length cessation of its movements. Without resorting to their nervous connexion to explain this close sympathy between the two organs, it may be stated as a fact, that disturbance of the stomach produces disturbance of the heart, even to that degree to cause it to cease altogether, and that within this limit it produces in it various abnormal states, as frequency or slowness, intermission, and irregularity. The two latter states are a most frequent

accompaniment to distention of the stomach by flatulence, and appear to be directly referrible to the narcotic effect of the carbonic acid, and sulphuretted hydrogen, as shall be rendered more probable when we consider the effects produced at the same time on the head.

Oppression of Breathing.—Generally comes on after breakfast, and is accompanied with the feeling of distention. This in ordinary cases arises from the impediment to the descent of the diaphragm; but in persons of tendency to spasmodic asthma, it passes into paroxysms of that disease, characterized by a spasmodic action of the larynx. This circumstance suggested to Dr. Bree, the importance of considering asthma, with reference to the stomach; and now that the diagnosis between chronic bronchitis and spasmodic asthma is more clearly established than when his work was written, a new light is thrown on the cases which he has described. Whenever the bowels are torpid in an asthmatic case, a great aggravation is preserved; and yet, on the other hand, the administration of the ordinary purgatives is often injurious, by the gastric irritation which follows; under those circumstances, the best mode of keeping the bowels free is by enemata or purgatives which act exclusively on the rectum.

Motes in Vision.—Those are usually black spots surrounded with luminous rings placed in various irregular forms, but generally holding the same relative position to each other. They all, from the opening to the shutting of the eye, appear as if falling down, although the eye may be intently directed forward. They are an inferior degree of amaurosis produced by the presence of the narcotic gases of the stomach.

Involuntary Action of the Eyelids.—This consists in a tremulous motion of the upper eyelid, which comes on and continues at uncertain intervals without the control of the patient. It is to be referred to the same cause as the last.

More or less Deafness.—Those who labour under an imperfect state of the organ of hearing, are well acquainted with the fact, that torpidity of the bowels always produces an aggra-

vation of the deafness. In some cases, various noises in the ears are the most striking symptom of torpid digestion. All such changes of the due sensibility may be ascribed either to irregularity of the circulation in the brain, or to direct narcotism from the presence of carbonic acid and sulphuretted hydrogen in the stomach and bowels.

Peculiar Lowness of Spirits and Disposition to brood over the Sensations produced by the Disease.—The mind is capable of being affected by external objects in a different way at different times, and the same circumstance which at one time appears grievous or intolerable, at another will seem altogether a trifle and of no moment. For example, when lying awake in the silent watches of the night, what perplexities we undergo, what anxieties torture us concerning things which, once daylight has pierced through the window shutters, give us no further concern. This may be adduced as an illustration of the cheering influence of light; but to take an instance in which external circumstances remain exactly the same, how differently we judge of things, according as we may be situate with respect to the requirements of the digestive organs. When under the influence of hunger, as of any other irritation of the stomach, it is an old observation, that we are less mild and less accessible to the requests of our fellow-creatures. Hence we are instructed, when seeking favours, to seize the *molliora tempora fandi*; that is, when the individual is neither hungry nor sleepy. This varied state of our feelings as to the external world is in direct connexion with the state of sensibility of the surfaces of our organization, and especially with those which, as the mucous membranes, are destined to come into contact with external objects. To prove how the sensibility of a part may alter from changes within itself, we may take as an example the peritoneum. This in health is so insensible, that we are not aware of its existence except by the evidence of anatomy. In no other way does any man know that he has a peritoneum. Never having felt it, he has no cognizance of it whatever; but let it be once inflamed,

then it at once informs us of its presence and position by the pain which it imparts when pressed or even touched in the slightest manner. This alteration of sensibility produced by disease, now so well known to physicians with respect to different parts of the body, was a subject of anxious observation to Aristotle; and the careful investigation of it, with the assistance of the light afforded by our perfect state of pathological knowledge, will be found to lead to some illustrations of that state of mind which is called temper. This, although it influences the opinions and actions of the great bulk of mankind much more than reason, has, nevertheless, been much neglected by the authors who have professed to treat on the science of mind.

Temper, or the state of sensibility belonging to each individual, is quite distinct from his intellectual endowments. In the most highly gifted it is often most remarkable from the splendour which accompanies its aberrations, and which often leads inferior mortals to follow with eager curiosity as the production of a master-mind what has been only the result of disease. Who can calmly reflect on the recorded conversations of Johnson, or Swift, or Byron, without being convinced that much of what the world admires has been the product of hypochondriacism; and that some of the most brilliant effusions, and those which mark the closest observation of human nature, have been suggested by irritations belonging to the physical organization of those celebrated individuals. This is a department of inquiry distinct from that of insanity, although often leading thereto; peculiarity of temper being to be considered a peculiarity of body rather than of mind.

Some organic diseases become established and progress to an incurable extent without affecting the feelings, even no pain is felt, the patient remains quite unconscious of any ailment, and maintains not only his usual tranquillity, but may be said to enjoy life as much as in his perfect health. Of the diseases so circumstanced, one of the best suited for an example is contraction of the aortic valves; tubercular phthisis is even a still more

remarkable instance, from the extent of destruction compared with the state of the feelings. Without relating cases of private individuals who have passed through all the stages, from the first short cough, to the extreme of emaciation, and, at length, dissolution, without manifesting either ill temper or despondency, we may at once refer to the cases of two eminent physicians of our own time, who, no doubt, had often in their lectures, as in their writings, informed their pupils of the peculiar infatuation which accompanies this disease, and who yet, when they themselves were the victims of it, fell into the same mistake; thus showing how in sickness science avails not to its possessor, but that the wise man dieth even as the fool. Laennec, in the last pages of his immortal work, refers to the palpitation evidently belonging to the tubercular deposition, which was then taking place, as a mere transient occurrence, and endeavours to convince his readers, as he had no doubt convinced himself, that it was produced by a flatulence, little imagining how soon his brilliant career was to close; and the late Dr. Armstrong, who attained to the most extensive practice in London, could hardly be forced away from his patients, to the country, even when his medical friends were convinced that he was far advanced in consumption. He died in December, with an unusually large cavity in one of his lungs, and on the 30th of July, when visited by Sir James Clarke and Dr. Davis, after they left him, he said he was quite satisfied that they considered his case hopeless, because he saw through their evasions of his questions on this point, but that such a conclusion was by no means warranted by the symptoms and circumstances of it. And Dr. Booth adds in his letter, "In short, he seems determined to recover, in order to confute you both." On the 12th of August, he wrote to Dr. Davies, "I shall give both you and Clarke a lecture for your want of tact." He never resigned expectations of recovery, until a complete prostration of strength had convinced him that the gloomy prognostics of his medical friends were but too well founded.

In direct contrast with this, is the state of general feeling in

affections of the intestinal tube, and of the organs immediately connected with them. It was an observation amongst the Greeks, that lowness of spirits was connected with the formation of black bile ; hence the derivation of the word *melancholy*. We see the truth of this observation confirmed in all the forms of jaundice, and in all diseases in which there is a retention of the biliary secretion. How the presence of this fluid can produce a feeling of sadness and despondency, rendering life miserable, is a question, towards the solution of which we dare not make an attempt. The immediate cause of pleasure or pain is far beyond our ken ; even the connexion between those internal feelings, and the manifestation of them by external actions, have never been explained. No one has ventured upon a conjecture to explain, why in grief the lachrymal gland pours forth tears, and the inspiratory muscles engage in short inspirations, called sobbing, or why, under cheerful emotions, the mouth is expanded in a lateral direction, and long inspirations take place, followed by short inspirations, called laughing ; or why certain emotions contract certain muscles of the face, and relax others. The fact, that jaundice is connected with sadness and lowness of spirits, is so generally known, that a smile on a jaundiced countenance appears almost an impossibility, and if represented in a painting, the utmost skill of the artist would scarcely succeed in preventing the observer from interpreting it as the expression of despair.

If unable to account for this effect produced by the retention of bile, we are not so with regard to irritations of the mucous membrane of the stomach, or intestinal canal. The sadness belonging to jaundice is very different from the temper produced by the irritation now mentioned. In the latter there are both sadness and peevishness combined. It often happens, that the temper of an individual is observed to be changed for the worse, that he becomes querulous and snappish without any evident cause, but that this state is sooner or later succeeded by the breaking out of a gastric fever, at the termination of which his wonted placidity returns. In children this moroseness is

easy to be observed, being denoted by gestures showing disinclination to be amused ; while in their seniors it occasionally bursts forth in explosions of temper, without any adequate external cause. An instance of gastric moroseness once occurred within the walls of our College of Physicians, which is so illustrative, that I cannot refrain from mentioning it. A certain physician, member of the Board (since dead), at one of the meetings deliberately applied language so unjustifiable and offensive to another member, from whom he had not received the slightest provocation, that the interposition of the President alone prevented a hostile meeting. The College having taken up the matter, were on the point of proceeding to extreme measures, when the offender was visited by one of the body to remonstrate with him upon his unjustifiable conduct. He found him in the state best suited for obtaining the forgiveness and commiseration of his professional brethren. He acknowledged his fault in the fullest manner, but pleaded in extenuation the state of his stomach. To this (or rather to the liver, according to the pathology of that time*) he ascribed the doleful truth, that he had become a misanthrope of the worst description, being as much an enemy to himself as to others. He stated, in an affecting manner, that on going out in the morning, he often felt tempted to commit suicide, were it not that it would afford a gratification to certain individuals, with which he was unwilling to indulge them. Fortunately this statement was made to a medical tribunal, who, by their professional experience, were convinced of its truth, and he obtained a remission of their original decision. Many labour under irritations of the stomach, without being aware of it, and ascribe their misery to extrinsic causes ; often to faults or failings on the part of their family, or household, without any truth or justice ; others vent their ill-humour on their neighbours, or on those set in authority. When occurring in advanced life, it often suggests a proneness to make disadvantageous comparisons

* “ Nous avons changé tout cela.”

between former times and the present ; thus realizing the *laudator temporis se juvene exacti*. It would far exceed our bounds to trace out all the forms which this temper assumes, but in all it is to be explained on the one principle, viz., a feeling of misery from an internal cause, of the nature, or even existence of which, we are not aware, and a consequent persuasion that it is occasioned from something without. When we reflect that the mucous membrane has not the sense of touch, and that when irritated or inflamed, it is not so much by a sensation in the part, as by dull headach, moroseness, feelings of distention, and general uneasiness diffused over the whole frame that it manifests itself, it is not surprising that such general misconception should prevail with regard to it.

Torpidity of digestion is however a still more remarkable instance of misconception and exaggeration of grievances on the part of the patient. In this the distention of the stomach or of the cells of the colon, although of small moment in the eyes of the physician, not only acts specifically on the temper, but perpetually reminds the patient of its presence, and in some instances has actually led to aberrations of intellect. In such cases an elastic tumour is felt, vague in its seat, sometimes moveable, sometimes fixed, increasing and diminishing at different times during the day, but never entirely absent, and usually accompanied by either the symptoms of irritation of the gastric glands or of the mucous membrane already described. Here the attention is constantly directed inwards, and generally a firm conviction takes place, that there is an organic disease either of the liver or of the heart. The moroseness and depression of spirits here take a new direction. Having an actual subject of complaint the patient fixes on it as the cause of all that he feels, and thus arises the disease termed hypochondriasis. The unhappy individual kept perpetually thinking of his ailment by this peculiar feeling of elastic distention, is constantly urged to seek relief wherever he imagines it can be obtained, and seldom possesses sufficient energy or patience to put

in practice those measures which are necessary to accomplish a cure. He, more than any other description of patient, is likely to apply for assistance from quacks. Medical science, with the doubts and hesitations which true knowledge always inspires, appears to him quite inadequate to remove the mighty burden of his disease; and thus, sooner or later, he falls into the toils of some impostor, or at least bestows his confidence, not according to the real benefit received from his medical adviser, but rather in proportion to the absurdity of his pretensions, and the zeal with which his adherents trumpet forth his praises. He generally wearies his friends with details of his sensations, and watches them with such anxiety, that he appears often to neglect every thing else. The minutest trifles appertaining to diet become matters of the gravest consideration, and we often see realized the picture drawn by the French comedian of Monsieur Argan, who was in a state of the most painful uncertainty, as to whether he should take his walking exercise along or across his room, and also as to the number of grains of salt he should put into his egg.

I had a patient once of this description, who imagined himself the subject of several complaints, but whose mind chiefly ran on the belief that he had an internal visceral disease, combined with rheumatism of the head. The sequel of his case proved how groundless those notions were, and I subjoin a short extract of his letters as a specimen of the style of a hypochondriac.

“Impossible, doctor, would it be for me to tell, or any mind to conceive my extraordinary and critical state. My whole body has appeared filled with water bursting out of every part of my head, my chest also felt as if greatly swelled, very sore all over the surface, and like a mass of ice and snow. My clothes felt as if quite wet every day; my back appeared to have a wet oppressive load pressing upon it, and my shoulders felt as if there were weights suspended from them dragging me down to the ground.” “When I was three weeks under your care I continued

to improve, and I am sure the bile would have been all removed; but the day after you told me you would soon have me able to go back to —— (it was cheering news)—you ordered me a draught (of oil and turpentine) which, though an excellent medicine, disagreed so far with my peculiar case, as to throw me back and leave me worse than ever I was. Oh pardon me for saying it, it locked up the bile tighter, it left a pain in the left side of my breast and in my left side, which I have yet; and a few days after you ordered me a draught of the black bottle which left me in an indescribable pitiable state, and operated so injuriously on my urinary organs as to leave me ever since scarcely able to pass any water, and then a draught of the comfrey root knocked me down entirely, and left me unable to leave the bed for weeks past.”

Let it not, however, be supposed, that the sufferings of those individuals are not real. They have as much reality to them as if produced by organic disease of the most evident and tangible character; and while we should be strenuous in our exertions to persuade them to abandon the inactivity which is always their principal aggravation, and often their only cause, we must recollect, that this morbid state is one to which all persons of merely intellectual occupations are more or less liable, and that we may at some time or other have to claim for ourselves the same sympathy which we are now called on to bestow.

SECOND PROPOSITION.—*To the above are added, in individuals disposed thereto, the symptoms of irritation of the gastric glands, (viz., sour eructations, and vomiting of sour fluid, with a sense of distention of the stomach, felt within about four hours after eating) or those of irritation of the mucous membrane of the stomach, (viz., morbid secretions on the tongue, bad taste and odour of the mouth, frontal headache, sometimes hiccup, and, in the greater degrees, thirst, loss of appetite, heat of the hands and feet.*

As my chief object has been to establish a diagnosis of those

distinct affections which are generally confounded together, under the name dyspepsia, and as my treatment rests entirely on this diagnosis, I cannot expect the reader of this, or of any of the previous articles, to appreciate their correctness or practical importance, unless he can recollect the distinctions which have been laid down. He will then perceive how I have assigned separate sets of symptoms to each affection, and be prepared to admit, that the simultaneous occurrence of the symptoms of different affections arises from the simultaneous occurrence of the affections themselves. Thus, in infancy and childhood, torpidity of digestion is always attended by gastric irritation; while in the adult age, it most frequently is accompanied by sourness and the other symptoms of irritation of the gastric glands; and, again, there are many cases in which the torpidity of digestion exists by itself, and is then productive of the symptoms described in the present communication, unaccompanied by any other.

THIRD PROPOSITION.—Its presence may be frequently diagnosed by the appearance of the mucous membrane of the mouth, and its presence predicted from a consideration of the general torpidity of the capillary circulation.

One of those appearances is characterized by remarkable paleness of the tongue and interior of the mouth, and has been well depicted in the plates belonging to Dr. M. Hall's work on the diseases of females. Another is more frequently seen in the advanced stages of life, and is remarkable from the deep shade of colour, approaching to lividity. In both there is coldness of the extremities, frequently amenorrhœa, and all the other indications of torpor in the capillary circulation, even although there may be preternatural activity in that of the heart. This torpor, as seen in the capillaries belonging to the general circulation, is always accompanied by a still greater degree of torpor in the circulation of the liver, and by a consequent derangement in the action of the stomach and bowels. From this consideration it follows, that in a great majority of cases, no

treatment can be successful which shall not act as an excitant to the liver.

FOURTH PROPOSITION.—*The agencies producing it, and aggravating it when present, are sedentary occupations, confined air, indigestible diet. The tendency to it is most frequent in the decline of life, but the habits of society have rendered it a common complaint at all ages.*

FIFTH PROPOSITION.—*Although arising from defective action and diminished sensibility in the mucous membrane, yet it leads often to local irritations and inflammation of the same, from the retention of fæcal matters which, in process of decomposition, act as chemical irritants, and hence arises much confusion, not only in the judgments formed of the symptoms, but of the adjuvantia and lædentia and means of cure.*

SIXTH PROPOSITION.—*The treatment to be adopted will be successful in proportion as it restores the mucous surface to the degree of sensibility required for the timely transmission of the fæcal masses ; and the success is complete when this is effected permanently, and without other diseases being induced.*

Other Diseases being induced.—This in a more special manner refers to the abuse of purgative pills, which have, in England, become an article of commerce. Besides those well known in the trade, as Hunt's, Cockles', Anderson's, &c., each establishment has now its "antibilious" pills, the sale of which is immense. The object in most of those formulæ is, *to make sure of their operating*. If they fail in this point, the purchaser will consider the money laid out as so much thrown away ; and hence almost all contain the most drastic purgatives, combined in a small bulk. By dissolving Morrison's pills in warm water, we may at once render evident the presence of gamboge and aloes ; and although the late proprietor is entitled to respect, if it be true that he sealed his belief in them, by suffering martyrdom

under their use, yet his agents, who have in so many instances been convicted of manslaughter, can hardly justify themselves by the plea of ignorance as to their probable effects. Used as a purgative, their action is generally satisfactory, with the exception of a slight frontal headach; but when taken in large doses daily, for a considerable time, as is directed, they produce chronic inflammation of the stomach and bowels, as is known by cases which have occurred to most practitioners. The effects following their indiscriminate administration are dreadful to reflect on. The continuous use of any combination of drastic purgatives not only creates a necessity of repeating the stimulus, but by the constant action of the same article, either softening or ulceration of the mucous membrane is at length produced in that portion of it on which the drastic more specially acts.

SEVENTH PROPOSITION.—*The remedies which are applicable to fulfil the required indication are, mercury, purgatives, tonics, cantharides, camphor; the diet that which is least in bulk and easiest of digestion. The other means of cure are cold bathing, frictions, early rising, variety of exercises, and the maintenance of a habit of taking food, and of evacuating the bowels at stated periods.*

The use of mercury is indicated, first, when the appearance of the discharges denotes a deficiency of the secretion of bile; and secondly, when the state of the capillary circulation, taken in connexion with other circumstances, points to a torpid circulation through the liver. In some of these cases a free use of mercury, so as to affect the mouth, will be required, and the benefit derivable from occasional doses of calomel, taken at night, and followed by aperients in the morning, is generally manifest even to the feelings of the patient.

Purgatives.—To enter on this part of the subject would require a large space. The idiosyncracies of patients with regard to this class of medicines are so various, that little benefit can be derived from medical advice by the patient who requires

them, unless the practitioner is in attendance sufficiently long to acquaint himself with his individual peculiarities. In the case of an old lady, I found the best purgative was Dover's powder, in ten grain doses, while the most approved purgatives had rather an astringent effect. In another, boiled turnips had a powerful effect whenever taken, while it was very difficult to move her bowels in the usual way. Many are purged by porter, or by bark, and some by coffee. Much may depend on using a variety of purgatives, so as to act on different portions of the canal. When there are irregular contractions in it, with distentions of flatus in the colon, peculiar benefit is derived from half-grain doses of assafoetida combined with soap. The same patient may, at different periods, require such dissimilar articles as the following : viz., quarter-of-a-drop doses of croton oil, mixed with Venice turpentine. Various aloetic compounds, solutions of the neutral salts in camphor-water, or with sulphuric acid, combinations of tinctures resembling the elixir of Jernitz, compounds of sulphur and scammony, enemas of solutions of soap, of assafoetida, or of turpentine. Let it be remembered, however, that purgatives are to be given only to redress a temporary evil, the effectual repairing of which is to be effected by other means.

Tonics.—As the treatment mainly rests on the application of tonic agencies, aloes are peculiarly well suited, as combining a bitter, which improves the languid state of the stomach, with the nauseous principle which causes contraction and evacuation of the large intestines. I have often seen great benefit follow the use of the following compound, viz., seven ounces of compound decoction of aloes and one of Huxham's tincture, a wine-glass full taken early in the morning, preceded by an assafoetida pill taken at bed time the previous night.

Camphor-Cantharides.—Camphor assists assafoetida in procuring the equal contraction of all parts of the intestinal tube ; but the common practice of sending pills home in boxes, renders the administration of this, as of other volatile substances, very

uncertain. To obviate this inconvenience, the following pills are directed to be kept in well stopped bottles :

℞ Assafoet. gr. vj.

Camphoræ gr. iv.

Carb. Ammon. gr. viij.

Aloes Hepat. gr. xxxvj. M. Ft. Pil. xij.

St. i. o. n. h. s.

With respect to cantharides, their effect on the neck of the bladder, and consequent stranguary, is only one part of that on the whole capillary circulation, and especially on the circulation of the mucous membranes.* Hence, unless forbidden by gastric irritation, it is of great value in the kind of torpor now before us, and doubly so in females, when accompanied by ammenorrhœa. A drachm and half of the tincture may be added to the aloetic mixture above mentioned.

Early Rising, Variety of Exercises, &c.—The baneful practice of lying in bed, is attended by general relaxation and torpidity of the bowels ; while the contrary practice, in delicate individuals, is often followed by a slight diarrhœa. But I find, that to adequately show the mode of action on the stomach, belonging to the agencies enumerated in this proposition, would by far exceed the boundaries assigned to the present communication ; and I now close it with this observation, that the cure of torpid digestion is easy to conceive in theory, but difficult to effect in practice, not from the inefficiency of the means to be employed, but from the discomfort and impatience appertaining to the disease, which render the patient unwilling to continue in the course of exertion and self-denial during the space of time which must be required for its removal.

* Even where the stranguary occurs it is so much under control, generally ceasing immediately after the medicine is discontinued, that it is not productive of any serious inconvenience.

ART. IX.—*A short Account of the School of Ophthalmic Surgery in Vienna.* By W. R. WILDE, M.R.I.A., Honorary Member of the African Institute of Paris, Corresponding Member of the Imperial Society of Physicians in Vienna, &c. &c., Surgeon to the Dispensary for Diseases of the Eye and Ear, Frederick Lane.

THE high and justly celebrated character that the School of Ophthalmic Surgery in Vienna obtained for itself above half a century ago, the many esteemed oculists it has brought forth, and the reputation it now enjoys of being the first of its kind in Europe, lead us to inquire somewhat as to its first foundation, its early history, and the means by which it has been raised to its present eminence. It is remarkable, that while ophthalmology is, and has, for so many years been cultivated with such marked success in Austria, the general practice of surgery is in a state so low, that one of the grades of those licensed by its universities and lyceums to practise that branch of the healing art, is compelled by law to keep a barber's shop, whose interior may be learned by a glance at Teniers' graphic illustration of a Dutch surgery.

In 1745, Van Swieten commenced the foundation and arrangement of the medical department of the Viennese University, under the auspices of the Empress Maria Theresa. The widely-spread fame of the learned pupil and commentator of Boerhaave, together with the encouragement then offered to men of science and literature to settle in the Austrian capital, soon attracted there some of the most distinguished characters in Europe.

In 1750, Nicholas Joseph Pallucci, an Italian physician, born in 1719, and already celebrated as an oculist and lithotomist, was brought by Van Swieten from Florence to the University of Vienna, and may fairly be said to have laid the foundation of the Ophthalmic School there; for although he was not a public teacher, yet the works he published on affec-

tions of the eye, and his expertness as an operator, generated a taste for that department of medical science, that has gone on increasing to the present day. Pallucci was opposed to the extraction of cataract, but depressed, it is said, with much facility and marked success. He invented a new instrument for this purpose, a kind of trocar, not unlike a cistatome, concealed within a sheath; and with the stilet of this he readily depressed. It was an instrument almost peculiar to himself, and soon fell into disuse. He was the first who removed with a forceps an opaque capsule through an opening in the cornea, an operation now frequently performed, especially by Professor Jäger, who, however, uses a hook instead of the forceps invented by the Italian. Pallucci died in 1797.* His first work that appeared upon the new method of depression, was published in French at Paris, in 1750, and probably procured him that reputation that recommended him to Van Swieten; it was afterwards reprinted in German at Leipzig, in 1752;† his second edition in Italian was published in Vienna, in 1763. In 1762, he put forth a large octavo in Latin, on the cure of fistula lachrymalis; his other works are on the operations for calculus and polypus nasi. Notwithstanding the labours of Pallucci, the present professors of the Viennese School claim Joseph Barth for its founder, he being the first public teacher of ophthalmology in the Austrian dominions.

Barth was born in the island of Malta, in 1745, and studied medicine at Rome, and afterwards at Vienna. When but eighteen years of age, he was appointed Professor of Anatomy to the University under Stöerk, the successor of Van Swieten. The anatomical school of the Austrian capital acquired considerable renown at that period from possessing the valuable microscopic preparations of Ruysch, Lieberkühn, and Albinus, purchased by

* Geschichte der nueren Heilkunde von Dr. J. F. C. Hecker—Zweites Buch. Dei Wiener Schule, von 1745, bis 1785.

† Beschreib. eines neuen Instruments, den Staar mit allem nur möglichen Erfolg niederzudrücken, 8vo. This instrument is figured in *Blazius*.

Van Swieten for the University; they were committed to the keeping of Barth, and the opportunities they afforded him for studying minute anatomical structure were eagerly laid hold of, and tended in no little degree to his future advancement.*

This tradition is current in Vienna; a lady attached to the court of the empress becoming blind, was pronounced amaurotic by the medical advice called in; her malady continuing to increase the Baron Wenzel was sent for, and at once declared it to be cataract; and operated on it with success. So amazed was Maria Theresia at this display of Austrian surgery, that she forthwith established a special lectureship of ophthalmology, and Joseph Barth was the first that filled this chair, in 1773; and in 1776 he was appointed oculist to Joseph the Second. He was a most expert extractor, and there are still living several who have witnessed his operations—the invention and use of Beer's knife (that now so generally adopted) is in a great measure due to him; for although his was longer in the blade, and somewhat broader toward the handle, yet it was upon an enlarged scale the same. The objections to it, of its pricking the nose from the great length of its point, and its not cutting itself out (as it is termed) with facility, is now obviated in that introduced by his pupil Beer. His mode of operating was remarkable; he did not require an assistant, (and was perhaps the first who did so), but placing the patient standing in the corner of the room near a window, he opened the lids, and fixed the eye with one hand, while he passed his knife through the cornea with the other, as is now so dexterously performed by Mr. Alexander; but different from that most distinguished oculist he stood *before* his patient.† It is needless to add that he was ambi-

* Several of these most beautiful preparations still remain in the University museum; those of Luberkühn in particular, now in the keeping of Professor Berris, are, notwithstanding all our modern improvements, some of the finest injections in existence; they are only equalled by those of our esteemed friend, Professor Hyrtl, of Prague.

† Ehrlich, Chirurg. Beobachtungen. Th. 1. S. 34.—und Saltz medic. Zeitung. Jahr, 1797. B. 2, S. 33. The first of these was published at Leipzig in 1795.

dextered. Barth wrote upon anatomy, and published sixty-one plates of the muscles in Vienna, 1786. His operations are to be found in the works cited below. He also wrote a small treatise on cataract, (*Alhandlung über die Ausziehung des grauen Staars*) in 1797. It is strange, that none of the writings of Barth are enumerated in Engelman's catalogue. He died in 1818, his portrait bespeaks him a man of noble and prepossessing appearance, and his *ad captandum*, but engaging manner and address, added to his acknowledged talents, procured him many admirers.

Cotemporaneously with him lived Joseph Mohrenheim, in Vienna, who, though not a teacher, was much consulted on eye diseases, as well as midwifery and general surgery. The peculiarity of his ophthalmic practice consisted in the use of a hook in extraction, with which, when the capsule could not with facility be opened, he *is said* to have drawn out the lens.*

About the same time Franz Siegerist invented, and published in Vienna, a description of his extraction knife, the peculiarity of which was the great length and fineness of its point, which resembled a needle, and projected far beyond the cutting portion of the instrument.† With this needle-pointed instrument he opened the capsule in passing through the anterior chamber; an operation afterwards attempted by Sir W. Adams, in this city. The advantages he ascribed to his invention were, that in addition to that just related, he was enabled to see the pupil and the greater portion of the iris when the point of his instrument had made the inner or counter punctuation; and it fixed the eye for the subsequent incision of the cornea, by its broader and hinder part. This, however, besides being liable to all the disadvantages of the over-lengthy knife of Barth, could seldom avoid pricking the side of the nose, unless the globe was turned outwards (by depressing the handle toward the temporal fossa)

* This operation will be found described in "Mohrenheim Beobachtungen verschiedener Chirurg. Vorfälle, Bd. 1. 2, 1780 und 1783."

† Siegerest, Beschreibung der Staarmessers und Gegenhalters. Vien. 1783.

more than natural; yet it had its supporters in its day. It is described at length by Jünken, in his *Augenoperationen*.

Barth had four highly distinguished pupils, Beer, Prochaska, Schmidt, and Santerelli; the former of whom, the father of modern ophthalmology, was the founder of this Clinique, and was the first special professor of diseases of the eye.

George Prochaska, the celebrated anatomist, though he neither wrote nor lectured on the organs of vision, practised much in private, as an oculist, in Vienna.

From the time of Barth, to the beginning of this century, Joseph Adam Schmidt, Professor of Surgery in the Josephinum Military Academy, did much to advance oculistic surgery in Germany. He delivered a course of lectures, and publicly performed operations on the eye, as the chief part of his course. Among his writings are several admirable publications on iritis, the operations for cataract, and diseases of the lachrymal organs, published from 1794 to 1812; and, in connexion with Himley, he edited and published the *Ophthalmologische Bibliothek*. Since his death his professorship has become a special one for ophthalmology, and has been occupied by the talented and distinguished Jäger.

To Jacob Santerelli is undoubtedly due the first performance of extraction through the upper section of the cornea. Dr. Mackenzie says, that when he was a pupil at Vienna, in 1817, "it was usual to attribute the invention of the upper section to Santerelli, and to swear in *verbo magistri* that it was a bad operation." It has been frequently claimed by others, we believe unjustly. Dr. Mackenzie continues, "Santerelli was the first (Delle Cateratte, p. 79 : Forli, 1811), as far as I know, who actually made the section, not semilaterally, as Wenzel had done, but at the upper edge of the cornea. This he did at Berlin, in 1795." The method of Santerelli was to operate standing behind the patient, who was seated beneath him, similar to that of Mr. Alexander. He opened the cornea, by inserting a knife, shaped like a broad-shouldered lancet, into the anterior

chamber, through its upper edge, acting in this manner like a wedge, and not giving the clean incision made by dividing it from side to side. Dr. Mackenzie doubts, (and it appears to us with great justice), whether he could in this way divide more than a quarter, or, at most, a third of the circle of the cornea; yet both Rosas and Jünken state, that he fairly opened the upper half of the cornea. The latter of these authors adds, that he latterly abandoned this method, and made the under incision. His work was first published in Vienna, in 1795.*

George Joseph Beer was for many years the assistant of Barth. He published his first essays in 1791, and soon acquired high renown as a writer, an operator, and an instructor. He commenced as a private teacher on the eye about the year 1798, and from thence to 1815 he was, with the unanimous consent of the profession, allowed to be the most esteemed writer of his day; indeed he may be said to have been the founder of the present improved practice of ophthalmic surgery, both in Europe and America. He was the first systematic arranger of eye diseases; and had his larger works been translated into our language, they would have robbed many a scribbler and so-called oculist of his borrowed plumes. Beer was a man whose observant eye, superior talents, and high literary and scientific attainments, would have raised him to eminence in any walk of life. He was a good anatomist, both human and comparative, and his preparations of the eye, made for demonstration, have been often detailed to us, by his pupils, as some of the most beautiful specimens of recent anatomy they had ever witnessed. It was, and still is this superior education, this general high scientific character of the German professors of ophthalmology, that first rescued that important art from the hands of the itinerant quacks and uninstructed empirics, styled *oculists*, of the last century. "Thus," says the author of a notice of the Medical School of Vienna, in 1821, "it is necessary accurately to dis-

* Santerelli recherche, per facilitare il cateterismo e l'estrazione della Cataratta. It is not noticed in Engelman.

tinguish those practitioners who have, of late years, applied themselves in Germany to the diseases of the eye, from the class who are termed oculists, whether of that or of any other country. The latter would wish to divide surgery into a number of trades, of which they would monopolize one. The former have not confined themselves to the eye, but all of them have come prepared to the study of that organ, by an intimate acquaintance with medical science in general; and many of them have distinguished themselves by their labours in anatomy, and their improvements in the practice of surgery." Of such men (added to those already enumerated) were Richter, Himly, Elbe, Rust, Benedict, Quadri, Gräfe, Plenk, Buchorn, Reisinger, &c.; while the names of Jäger, Rosas, Jünken, Fisher, Ammon, Walther, Langenbeck, Chilius, Weller, Peringer, and others, of the present school, ably retain the character earned by their predecessors.*

The writings and discoveries of Beer are too well known to require comment or enumeration here. From a little read, but interesting pamphlet of his, published in 1813, (*Die Geschichte der Augenheilkunde*), we are first informed of the erection of the Ophthalmic Clinique in Vienna. In it, he says, that after fourteen years private instruction in his art, he laid the design of forming a special Clinique for this purpose before the emperor. This design was approved of, and a portion of the Imperial Hospital set apart for treating and teaching eye diseases, "so that," he writes, "I actually ascended the clinical pulpit on the 28th of April, 1812, as Extraordinary Professor of Diseases of the Eye to the high school of this place." Being then but Extraordinary Professor, the students of the university were not compelled to attend his lectures; but men from every part of Europe soon flocked round the great teacher to profit by

* Dr. Sichel, of Paris, is also of this school, being a German, educated in the Ophthalmic Clinique of Vienna; he was the pupil, and afterwards the assistant of Jäger.

his instructions, and take advantage of the many opportunities his position afforded.* In 1815, the Extraordinary was converted into an Ordinary professorship of practical ophthalmology, attendance on which then became a compulsory part of medical education ; and a paid assistant, who resides in the hospital, was attached to the Clinique.

Among the many pupils of Beer, five in particular distinguished themselves, Jäger, Rosas, Benedict, Bringolf, and Dr. Fisher, the venerable professor of ophthalmology at Prague.

Dr. Frederick Jäger, the son of a physician of Mergentheim, in Wurtenburg, was the favourite pupil, and afterwards the assistant of Beer. He resided in Vienna in the former capacity in 1808, and on taking his Doctor's degree at Landshut,† in the same year, he wrote an inaugural dissertation on "The Diagnosis of Arthritic and Syphilitic Inflammation of the Eye." From 1808 to 1812 he continued the assistant of the great Austrian oculist, who speaks thus of him in the little work already quoted, *Geschichte der Augenheilkunde* ; " Since then," i. e. from 1808 to 1812, " he was uninterruptedly my assistant, and so advantageously distinguished himself by his diligent application, that he not only (under my direction) undertook, in private, the extraction of a cataract, but also publicly in the clinical school, operated successfully by means of the same operation on both eyes of John Haas, a man aged 55, on the 19th of June, 1812." In the same year, Jäger published his "*Dissertatio de Keratonyxidis Usu*,"‡ in which he records the results, and descants upon the merits of nineteen operations for cataract by keratonixis. On the death of J. A. Schmidt, Dr. F. Jäger was appointed special Professor of Ophthalmology to the Josephinum Aca-

* Wardrop and Dr. Mackenzie were both pupils of Beer.

† The university of Landshut was transferred to Munich in 1826.

‡ *Dissertatio de Keratonyxidis usu, quam pro facultate praxeos medicæ in ditio-nibus Austriacis exercendæ, rite obtinenda in antiquissima ac celeberrima Universitate Vindobonensi disquisitioni publicæ submittit, Fridericus Jäger, 1812. Vienna, 8vo.*

demy, a place he still continues to hold ; and, as an operator has obtained nearly the same exalted reputation enjoyed by his master ; and his private teaching is at present one of the greatest attractions in Vienna.*

His clinique is on the same plan as that of the Grand Civil Hospital ; it contains two wards, with eleven male and eleven female beds ; the students are those educating for medical officers of the Austrian army ; and the patients, soldiers and their families. Connected with this is a large *ambulatorium*, or dispensary, for out patients, or indeed all who choose to come ; and around the Professor's chair will be found medical men of nearly every country in Europe, as well as America, attracted by the splendour of his operations, and attached to him by the unvariable kindness, and winning urbanity of his manner. The business is conducted on the general principle of the other German clinics ; it commences at eleven and ends at one o'clock. Between the wards is a spacious hall ; into this the patient who is to be examined is conducted by a pupil, called *ordinarius*, in whose charge he is placed, who first gives the history of the case (in German), and then proceeds with the subjective symptoms, and lastly, the description of the present appearances. He is then questioned on the case by the Professor, and concludes with the diagnosis, prognosis, and therapea. The Professor then generally makes some observations on the peculiarity of each example of disease, as it presents itself in the persons so examined.

The second hour is usually occupied with operations. Of Jäger's modes of operating, and the principles of his treatment, we shall speak hereafter. On the whole, we may say, that the latter is very similar to that pursued in the London Ophthalmic Hospital. Finally, those patients not able to be removed from their beds, are visited.

Occasionally the Professor holds a public examination of all

* Jäger subsequently became the son-in-law of Beer, whose library, preparations, and instruments he thus inherited. His elder brother, Dr. Carl Jäger, a man of much learning, also practises as an oculist in Vienna.

the pupils in his class, and his assistant gives a course of public lectures on the operative surgery of the eye, twice a week.

In the year 1839, the number of patients treated in this clinique was 128 ; these were all cases of interest and importance, and were chosen from out of the wards of the entire hospital.

The number treated in the ambulatorium was 238. The following table exhibits the number and variety of cataracts, with the results, treated in the Josephinum Academy in the above year :

	Admitted.	Cured.	Relieved.
Lenticular,	52	45	7
Capsular,	9	4	5
Capsulo-Lenticular, . . .	10	10	0
Secondary,	1	1	0
Total,	72	60	12

Cataract and amaurosis are diseases of very frequent occurrence in Vienna, as also arthritic affections of the eyes, particularly arthritic iritis, whereas the syphilitic form of that disease is very rare in comparison with other countries, but especially in Great Britain, only three cases of it having presented in the Josephinum Eye Clinique in the last year.*

During the warm season, severe ophthalmias predominate more than with us, and many of them run rapidly into the purulent, or even the Egyptian form, particularly among the soldiery. The hot winds laden with quantities of fine dust, very similar to that in Egypt and other parts of the Levant, which prevail during the summer months, and are so annoying upon the Glacis and in the Vorstadt of this great city, are, no doubt, a fruitful source of ophthalmia to the Viennese. Chronic keratitis, the *pannus* of continental writers, is also very common here,

* There are several hundred persons treated in the syphilitic wards of the great hospital of Vienna yearly, both male and female, with every variety of venereal disease, *without* mercury ; and so rarely and sparingly is this remedy employed in private practice, that it can be fairly said the Austrian treatment of this malady is *non mercurial* ; yet secondary affections, particularly those of the eye are fewer than in other countries.

and has received of late years much attention from the German oculists.*

It is matter of regret that a man possessing the experience and opportunities of Dr. Jäger, has not favoured the Profession with more of his observations and opinions ; for, with the exception of some scattered articles in Journals and medical periodicals, he wrote nothing from the date of the work already quoted at page 261, till last year, when, owing to the great ravages of the so-styled Egyptian ophthalmia in the Austrian army, he was called upon by the Government to draw up a

* The treatment of pannus, or chronic cornitis, by producing a new inflammation through inoculation with the matter of *ophthalmia neonatorum*, though almost unknown in these countries, has been employed for many years in Germany ; and has lately attracted particular attention from its mention and recommendation in the work of Dr. J. F. Peringer, oculist to the hospital at Grätz, “ *Die Blennorrhæ am Menschenauge ;*” and in particular in the chapter “ *Die Heilung des Pannus durch Einimpfung der Ophthalmoblennorrhæ.*”

Prior to the appearance of this very laborious work, so admirable in its symptomatology, our attention was directed to the subject by Professor Jäger, in whose clinique we had an opportunity of observing two cases so treated in November last.

Both of these patients, one an officer, æt. 24, the other a soldier, æt. 27, had been afflicted with this most intractable malady, in its most severe form, for many months, one, indeed, for years. In both, the cornea strongly resembled a piece of *red cloth*, being highly vascular to the naked eye ; and numerous other fine vessels becoming perceptible on viewing it with a moderate lens ; the intervals between the vessels, as seen with the lens, being opaque, greyish, and similar to ground glass, and the whole surface apparently raised above its normal height. In both there was considerable conjunctivitis, some photophobia and epiphora, but no abnormal discharge ; both eyes of these persons were similarly affected, and it is needless to add, that they were unable to “ find their way,” or pursue their occupations. They were of scrofulous habits, their general health much impaired, and the usual remedies had been resorted to without any permanent improvement. Upon the 19th of November, Jäger inoculated one of these cases, by placing a camel's hair pencil containing some of the matter of *ophthalmia neonatorum*, previously moistened over the steam of warm water, between the eyelids. In this instance a glutinous viscid mucous discharge was perceptible upon the ciliæ and palpebral margin within *one hour and a half* from the time of the application of the matter which, from its minuteness and solubility, could not have acted as a foreign body.

memoir on that subject, shortly before his visit to the Crown Prince of Hanover. (*Die Egyptische Augen-Entzündung (opthalmica Egyptica)—Zufolge allerhöchsten Auftrags—von Frederick Jäger.*) A passing notice of this little work may not be out of place here; for although the opinions therein advocated have not been noticed in the English periodicals, they have given rise to much discussion in Germany.

The outline of the history, and, in particular, the enumeration of the symptoms of this disease, are detailed with remarkable acuteness. He admits, that, in general, the latter are those

This discharge continued to increase without any other symptom, till exactly the twenty-fourth hour from the date of the inoculation, when the pain, swelling, and other symptoms of purulent ophthalmia set in. On visiting him at the thirty-sixth hour, in addition to the above, he had increased lachrymation, great intolerance of light, the ciliæ gathered into packets, and clotted with the discharge, which was then profuse and muco-purulent, and the superior palpebræ were swollen, œdematous, and of a purplish-red colour, deepening towards their margins, which overhung the lower ones. On opening the lids, the conjunctiva scleroticæ was redder than before, swelled, and slightly ecchemosed, but *not so florid* as is usual in cases of common ophthalmia; the cornea was sunk, muddy, and of a *lighter colour* than prior to the application of the infection, and flocculi of whitish lymph matter floated out on the discharge. Leeches, purging, fomentations, confinement to bed in a modified light, and the other usual antiphlogistic remedies were had recourse to, and on the ecchemosis increasing, incisions were made in it with the scissors. To transcribe the notes of the progress of this and the second case, similarly treated, and attended with very similar symptoms, would prolong this paper to an inconvenient length. In both instances, the inflammation ran very high, and very active measures had to be resorted to. In one, ulceration of the cornea took place. Finally, however, i. e. at the end of about ten weeks, after frequent minor attacks of fresh inflammation, they recovered, with slight opacity of the cornea, and left the hospital with very useful vision; and although much broken in health, free from pain in the eyes.

To Jäger is undoubtedly due the introduction of this mode of treating pannus, as well as old standing cases of general scrofulous vascularity of the conjunctiva, covering both lids and bulb. He stated to us, that he first tried it thirty years ago, when assistant to Beer, (but without his knowledge), and has cured hundreds by it. He says that he has always found the newly-produced disease is never so violent when another affection has possession (as he terms it) of the organ.

Unless it be homœopathically, the *modus operandi* of this method of cure is, no

of the common catarrhal ophthalmia in the first instance, on the basis of which (as he expresses it) the Egyptian form develops itself. The earliest appearances, he says, are, that the conjunctiva palpebrarum *on the border of the tarsus*, loses its healthy aspect, its transparency, and its pale pink colour, becomes dry ; the mibomian secretion ceases, it then shows a deep and uniform redness—the redness of inflammation—still unattended with secretion of any kind ; and instead of the healthy shining appearance,* it becomes opaque, rough, like muffed, or slightly ground glass. If in a few hours the lids be everted, the conjunctiva

doubt, very difficult to explain ; but certain it is, that in a great number of cases when the purulent ophthalmia ceases, the previously existing opacity and vascularity of the cornea clears off along with it. Can it be that the chemosis which forms round the margin of the cornea, and which would, in all probability, destroy that structure in an eye previously healthy, acts only so far upon the diseased one (by cutting off the abnormal supply of blood sent into it through the enlarged vessels) that it retains a sufficiency of vitality to preserve it till the inflammation has subsided ; and then, that the process of adhesion and lymph deposit round the cornea prevents a recurrence of the old affection, when the produced one has been removed ?

Dr. Peringer has related a number of very interesting cases, illustrative of the foregoing remarks, well worth the perusal of the oculist. In one, he had to inoculate three times before inflammation took place ; first, upon the 20th of June, with freshly taken infection. No alteration taking place, he again applied it on the 23rd and 25th, but without effect. Finally, however, on the 26th, he made a third trial with the very same matter, a portion of that originally taken from a new-born infant, and succeeded. In this case the disease showed itself fully in thirty-six hours, and in forty-eight it was perfectly established.

This remedy is no doubt a severe one ; but there are few persons afflicted with this disease in an aggravated form, who would not submit to it.

It will be advisable to procure the infection, if possible, from a case of pure ophthalmia neonatorum, and not that arising from gonorrhœa.

The German writers recognize two forms of pannus, the *dünne augenfell* (pannus tenuis, seu membranaceus) ; and the *dicke oder fleischige augenfell*, (pannus carnosus, seu sarcomatosus).

* A good method of examining this appearance of the tarsal margin in the healthy eye, is to look closely into a piece of highly polished concave speculum metal.

lining them will exhibit a bluish-red, sometimes a dark purple colour. At the same time the membrane itself swells, and the papillary bodies upon its surface (*corpora papillaria*) become more developed, hypertrophied, of a firm round tightly-compressed form, and stand out prominently from the tunic on which they are placed, resembling very much the granulations in a wound, visibly raised above the surface.

The absence of distinct stages and the other symptoms he mentions are those remarked by most writers on the subject, but upon this *early* development and granular appearance of this villous layer of the conjunctiva (the *Papillarkörper*), it is that he diagnoses *the Egyptian from all other ophthalmias*.

The Professor coincides with the opinions we have already expressed, as to the predisposing and exciting causes of this disease; at least as it presented itself to us in Egypt.* Among the former of these, he mentions excess of light, wind, sand, smoke, or ammoniacal vapours carried in the atmosphere, mechanical irritants, over use of the eye, excess in vinous liquors,† bad food, suppressed perspiration, and the previous existence of catarrhal disease, whether of an endemic or epidemic nature. To these causes, which are those that likewise produce the common catarrhal ophthalmia, he adds *miasma* and *contagion*, as productive of the Egyptian affection. We have already remarked elsewhere upon the probability of this *miasma* arising from the noxious exhalations that take place on the fall of the Nile, and at the season of the Khumáseén winds. With respect to the contagion, he does not consider it at all necessary for the matter to be applied to the eye, but thinks that it is volatile, i. e. that the discharge, especially when it becomes fœtid, gives off its infecting particles, that first affect the tarsal margin of the lids, and produce this already described morbid growth from

* Narrative of a Voyage to Madeira and the Mediterranean, vol. i. p. 330.

† The Austrian soldiery are particularly liable to the Egyptian ophthalmia on the first use of the newly-made country wines. This was also the opinion of Beer.

the conjunctiva. Dr. Jäger has several times pointed out this early granular appearance to us, and the remarkable round distinct form that these bodies subsequently present in the after stages of the disease. But we must confess, that although we have had opportunities of examining many hundreds of Egyptians so affected, both at Alexandria and in the hospital at Cairo, it did not seem to us that these *papillarkörper*s were at all necessary to constitute true Egyptian ophthalmia; or that the subsequent granulations differed in any way from those that result from other causes.* Dr. Rigler is at present the assistant in the Josephinum Eye Clinique.

On the death of Beer, Dr. Antony Elden Von Rosas, a Hungarian physician, succeeded him in the Chair of Ophthalmic Surgery in the University, and holds his clinique from ten to twelve o'clock in the great general hospital—*K. K. Allgemeine Krankenhaus*. As this clinique has been already described in the days of its venerable founder, a brief notice of it will here suffice.† It consists of a well-arranged auditorium, where lectures are delivered and operations performed, and two wards, containing twenty beds, most admirably fitted up for the comfort of persons labouring under eye diseases. The annual reception of patients into this clinique is about 150, all interesting cases, chosen by the Professor's assistant, from the wards of the entire hospital, which contains 2,500 patients, and occupies the largest space of ground of any such institution in Europe. With this clinique is also united an ambulatorium, which affords relief to above one thousand persons yearly. The only difference in the routine of business here is, that the language spoken is Latin, and the *ordinarius* proceeds first with the objective, and then with the subjective symptoms; and immediately before each

* A very severe critique appeared on this portion of his work, in the "*Österreichische Medicinische Jahrbücher*" of last autumn, edited by Professor Rosas.

† See the *Quarterly Journal of Foreign Medicine and Surgery*, vol. i. 1818 and 1819.

operation he reads aloud a Latin dissertation upon the case, its history, the objects of the operation, and probable result. On the whole, it is more methodical than that in the Josephinum, and perhaps this, added to the pains taken to instruct in the general treatment of patients, make this establishment better adapted to the improvement of students, whereas that of Jäger is better suited to the already initiated, and the more advanced oculist. After the ordinary duties of the clinique in the theatre are ended, the Professor visits those unable to be removed from their ward, where most valuable information can be gleaned from his observations. Without drawing invidious distinctions between the relative merits of these two great men, it may, perhaps, be near the truth to say, that while the operations of Jäger are the most splendid exhibitions of eye surgery in Europe, the therapea (treatment) of Rosas is superior ; and, as far as the history of his science goes, the latter is said to be the more learned of the two.

In this theatre stands the bust of the Emperor Francis I., “*Patris Patriæ*,” under whose auspices, and that of Andreas Von Stift, the Protomedicus, it was erected in 1816 ; and around the walls are pictures of Barth, Prochaksa, Rust, T. Sömmerring, Richter, Schmidt, Fisher, Quadri of Bologna, Philip Von Walter of Munich, Graefe, Jünken, Von Ammon, and our distinguished countryman, Dr. Mackenzie.

Attached to this clinique is a very valuable and extensive library, chiefly composed of works upon the eye, from which books are lent out to the student or visitor, weekly, on a very small subscription.

There is a small collection of pathological specimens of the human eye, preserved in spirits, many of them made by Beer ; but one of the greatest attractions in the school of Vienna is the magnificent museum of wax preparations of the morbid eye, made by a native of the Austrian capital, and the extensive collection of eye instruments, from the very earliest period to the present day. These two are in their way *unique*.

Dr. Rosas delivers lectures in the Eye Clinique once or twice a week ; and his work, “ The Handbook of the Theory and Practice of Eye Surgery,” is one of the most generally read modern works upon that subject in Germany.* Strangers are always admitted, free of cost, into the Eye Clinique, both in the general hospital and the military academy.

The most advisable course to be pursued by those who visit Vienna solely for the sake of the eye practice, is to attend Rosas, from ten to half-past eleven ; then a few minutes' walk will conduct one to the school of Jäger, where he should remain till half-past twelve or one. From one to two Jäger has a public *ordination*, as it is termed, at his own house, for the reception of patients from among the middling classes, to which he generally invites strangers, but to which his private pupils always have access. Much can be learned here of his private practice ; and no one visiting Vienna but should, if possible, get access to it. We now arrive at the most attractive portion of the course, and by far the most valuable part of the education given in eye surgery—the private course of instruction in operating. This occupies the hour from two to three, daily, at the Professor's house, when eyes can be procured, and for this a stated sum is required. He takes but six pupils at a time, and these are almost invariably foreigners, either private individuals, or persons sent by their governments or their universities.† This course lasts generally about three months. Of the advantages it offers, as well as Jäger's and Rosas' modes of operating, we purpose to devote another chapter. Enough is it for the present to say, that there is no such inducement held out to visit any other continental school ; and of its teacher we may justly say, in the words of a late writer on the subject, “ *und was Allen bekant ist, mag ge-*

* Handbuch der theoretischen und practischen Augenheilkunde, 3 Bdl., 1830. Also, an abridgment, in one vol., *Lehre von den Augenkrankheiten*, 1834, Vienna.

† Among the oculists of the Viennese school practising in England, are W. T. Wharton, Jones, and Dr. Franz.

nügen, dass Niemand seinen Unterricht ohne Befriedigung genossen hat.

Private courses on operative ophthalmology are likewise given occasionally by Dr. Rosas, and by the assistants of both Professors.

That of Dr. Gubz, the assistant in the general hospital, should not be neglected, as he gives some most interesting information on the history of his art, illustrative of the splendid collection of instruments before spoken of.

We have thus briefly recorded the history and present state of the science of eye surgery, and conclude for the present with a short notice of the ophthalmic education in Austria.

Every student in medicine, intending to take out a degree as Doctor of Medicine or Surgery, must attend the ophthalmic clinique, during the first six months of his fifth year, at the end of which period he is examined by the Professor as to his proficiency.

Again, at his second final examination (*Zweyte Prüfung*), his knowledge of eye diseases is most strictly inquired into.

Every purely surgical student intending to become a *Civil und Landwundarzt*, or a general practitioner, must attend to this branch of study during the second six months of his third year, and is again examined upon it at his first final examination.

In order, however, to perform operations on the eye, and practise this branch specially, it is necessary that an additional year (after the degree has been obtained from the University) be spent in attendance upon the eye clinique; at the end of which, some public operations performed in the presence of the Professor, are required as a test of the person's right to practise.

These oculists, styled *Land und Stadt Augenarztes*, are distributed throughout the whole of the empire, and no town of any eminence is without one, who is obliged to administer relief, both with medicine and advice to the poor, in all cases of eye diseases, and also to furnish the Board of Medical Direction with a monthly report of the progress of such among the people. The previous length of this paper prevents us giving an account

of the admirable institutions for the blind in Vienna, and the statistics of those so affected in the Austrian empire. For further information on that subject, we must refer our readers to our forthcoming publication on the Medical Institutions of that country.*

ART. X.—*Observations on the Connexion between Delirium and certain States of the Heart in Fever, with Cases.*

By ALFRED HUDSON, M. B., T.C.D., Physician to the Navan Fever Hospital.

DURING the past year (1840) an epidemic of contagious fever prevailed in this town and neighbourhood, to an extent and fatality quite unknown at any period since the great epidemic of 1817 and 1818. Its general characters were those of a putrid spotted fever, with prominent nervous symptoms, the chest and abdomen being, for the most part, little engaged, and delirium of every variety, subsultus, aphonia, dysphagia, and involuntary evacuations being present, most or all of them in all severe cases. In such a form of disease we had but little recourse to any measures of a depletory kind, while wine and opium were frequently employed to a considerable extent, and, upon the whole, with satisfactory results. Occasionally, however, it was otherwise, and, after a little while, low muttering changed into furious delirium; and one or other of these states sometimes passed into coma, after the exhibition of a small dose of opium. The occurrence of these untoward results, in several instances, led me to institute some inquiries into the conditions under which they took place, and also into the most certain indications for the employment of these two great remedial measures.

The results of these, after more than a year's experience of their correctness, I now offer to the readers of this Journal.

With reference to wine, I derived the greatest possible assistance from Dr. Stokes's valuable researches in the 43rd Number of this Journal; and my observations of the state of the

* See Advertisement in this Number.

heart, and its deviations from healthy action, (as recognized by the stethoscopic signs), and of the different effects of remedies in its different states, extending to about a hundred cases, in which particular attention was paid to these points, while they led me to other independent conclusions, fully confirmed one originally announced by him, that "in the diminished impulse and in the feebleness or extinction of the first sound, we have a new, direct, and important indication for the use of wine in typhus fever." Every day's experience increases my conviction that the value of this practical rule can scarcely be over estimated, and that wine should rarely be exhibited except in accordance with it. With regard to the other remedy of no less value, and much greater difficulty in its management, no satisfactory rules for the exhibition of opium have yet been given to the Profession. Dr. Graves, who has probably illustrated its action more fully than any writer of the present day, and has introduced into general practice a mode of administration preferable to all others, in combination with tartar-emetic, says, "It is the discovery of the utility of this practice in the advanced stages of spotted fevers, that I claim particularly as my own;"* and it will be seen that this is a just appreciation of the merit of his own paper, which is really that of having proved, that the most extreme prostration and debility are, at least, *not incompatible* with the safe exhibition of this heroic remedy. But if we seek what is so much needed, a statement of the pathological conditions in which opium can be administered with benefit, and a certain fixed guide to the knowledge of that state, Dr. Graves can scarcely be said to have given either, and the result has been, that many who recognized (or thought they did so) the same features in their own cases as those which he has so powerfully depicted, have been disappointed in their anticipation of the effects of the treatment which they were thus led upon incorrect grounds to adopt. The cause

* Dublin Medical Journal, vol. ix.

of this is obvious; natural sagacity, aided by extensive experience, may enable their possessor to detect, with almost unerring accuracy, the conditions in which a given remedy shall be indicated, and to decide upon the proper course to be pursued in the most difficult case without being able to assign *data*. In the absence of these, and of the tact which supplies their place, the exhibition of opium becomes, in other hands, productive of good or injury, according to the chance result of an uncertain and hazardous experiment.

Numerous observations have led me to conclude that opium agrees with that state of the cerebral circulation with which wine agrees, and *vice versa*, and that the indications derived from the signs of the heart are the same, and of equal value with reference to both. I have already stated that in several instances bad effects seemed to follow the exhibition of opium and tartar emetic. A little observation showed that the same conditions were present which caused wine to disagree, and conversely, that those in which opium produced the best effects were precisely the same as those in which wine, freely administered, did good. In one of these cases the patient took, before sleep could be procured, a drachm and a half of the acetum opii, with six grains of tartar-emetic, in divided doses, and with the best effect, while in another, a single dose of six drops of the same preparation, combined, also, with the antimony, was followed by loss of speech and power of deglutition, tetanic rigidity of the muscles, coma, and death in rapid succession. Here were two opposite conditions of the system in the same disease. The states of the cerebral circulation, in particular, must have been different; but by what external character were these to be recognized? Those which appeared upon the external examination of the patients, in the several instances of each class, were—in the first, the signs of a feeble heart, viz., the loss of impulse and diminution or absence of its first sound; in the second, strong impulse, and distinct and loud sounds.

A corresponding difference of the appearances on dissection

was found. In those who during life had manifested the signs of a feeble heart, this organ was softened, and the morbid appearances of the brain were those of venous congestion ; in the others, the heart was firm and contracted, and the arteries of the brain were injected. A little consideration will show that the conclusion to which these observations would lead as to the connexion between the opposite state of the heart and corresponding states of the cerebral circulation, is consistent with the pathology of the latter affections, and might, to a certain extent, be anticipated by reasoning ; for, admitting the truth of the proposition that “the pathology of the brain is, in many instances, intimately connected with, and dependent upon the pathology of the heart,”* we would (reasoning *a priori*) infer that cerebral excitement, attended with increased strength and activity of the central organ of the circulation, should be found to depend upon a sthenic or arterial congestion, while a feeble state of the propelling power would lead to more or less stagnation in the venous current, and congestion in those vessels with what always co-exists with such congestions, *a diminished supply of arterial blood*—this last condition being, in all probability, the true cause of the physiological effects of venous congestion of the brain.

We would thus suppose the existence of two opposite pathological states of the brain, requiring opposite treatment, and yet possessing external characters and symptoms having so close a resemblance as to require frequently more than ordinary powers of discrimination to distinguish between them.

Such a supposition is consistent with the analogy of other affections, especially of “delirium tremens.” Of this disease every practitioner recognizes at least two varieties, one of which is controlled by opium, with the precision and certainty of a specific ; while another case, differing so little in its external

* Dr. Law on Disease of the Brain dependent on Disease of the Heart. Dublin Medical Journal, No. 50.

characters as to be frequently confounded with it, is exasperated and rendered fatal by this medicine. One requires stimulants, the other bleeding and purging. Dissection reveals passive venous congestion in one case, and determinations of blood to the brain or membranes in the other.

It is true, that no observations have been made regarding the states of the heart in delirium tremens, and those now offered are, I believe, the first which have been made in proof of a connexion of a determinate kind between the morbid states of the two organs in fever ; but, independent of this evidence, it may be remarked, that if the existence of a softened and feeble state of the heart in fever be admitted, we cannot but suppose this to exert a marked influence upon the cerebral circulation.

The influence of the propelling power of the heart, “*vis à tergo*,” upon the current of the venous circulation, is too well known, and too easily tested, to require any proof in this place ; and it is but rational to expect, that where it is weakened by disease, a stagnation, to a greater or less degree, should occur in that part of the venous system the most subject to its influence ; in other words, the venous capillaries and small veins. Such a state may exist in various degrees, from that scarcely perceptible to the eye of the anatomist, to that accompanied by its result when present in great degree, turgescence of the large veins. The steps in the morbid process may be thus recapitulated : first, feeble heart, then diminished flow into the small arteries, and loss of the *vis a tergo*, then stagnation of the venous branches, and, finally congestion or turgescence in their trunks. Alteration of the constitution of the blood, while it is probably the cause of some of the typhoid engorgements, particularly that of the spleen, has also an effect upon the structure of the heart, and by producing softening of this organ, leads to the series of consequences just described.

Without further digression, I shall proceed to offer a few examples of different conditions of the heart, their connexion with different states of the cerebral circulation, and the effects

of different modes of treatment upon them ; arranging these in the order of, cases of feeble heart with softening ; feeble heart treated by wine and opium ; strong heart with delirium and arterial congestion ; the same treated by depletion ; and, varying states of the heart met by corresponding variations in treatment.

CASE I.—*Feeble Heart with Change of Structure.*

Ann Kennedy. On the tenth day of fever, much maculated ; delirious ; heart's impulse feeble, sounds indistinct at left side, short and clear at right. Ordered carbonate of ammonia and camphor, with eight ounces of wine ; a blister to the neck.

14th day. Involuntary evacuations ; delirium as before ; eyes very much suffused ; heart as before.

15th. Subsultus ; delirium increased ; heart's impulse much stronger than before. The wine was withdrawn, and the head shaved, four leeches applied behind the ear, and an evaporating lotion to the scalp.

16th. The heart's impulse absent ; first sound absent at left side, and very indistinct at right ; pulse 130, very weak and fluttering ; delirium and stupor. Wine to be renewed, a blister to the scalp.

17th. Pulse 120, and a shade stronger ; heart as before.

18th. Restlessness ; face livid, with pinched expression ; sounds of heart scarcely at all audible ; pulse 126, feeble, but distinct ; extremities cold. Died on the morning of the 19th day.

Examination 24 Hours after Death.—The heart was of a dark colour, externally soft, flaccid, and pitting on pressure. There were several small patches of ecchymosis under its serous membrane. It contained a quantity of dark fluid blood ; the section of the parietes of the left ventricle presented a curious mottled appearance, all traces of muscular fibre being lost in patches, which varied in their colour, and exactly resembled portions of hepatized lung, in different stages of pneumonia. The fracture of these portions was short and granular. I could not satisfy myself of the existence of the fluid described by

Dr. Stokes. The finger passed readily, and with little force, through every part of the organ. The veins of the pia mater were much congested, and there was an unusual quantity of serum in the ventricles of the brain.

CASE II.—Dominick Kearns, æt. 35, admitted on the ninth day of maculated fever. The heart's impulse feeble, sounds short and clear on both sides; pulse 100, and weak.

Hydrarg. cum creta. s. iv. ter die.

14th. Until this day no change took place; has now muttering and delirium; twitching of the mouth and jactitation; pulse 122, feeble; heart as before. The head to be shaved, and a cold lotion applied; six leeches to the temples; a blister to the neck.

16th. Twitchings of the mouth and general subsultus; stupor; lies on his back; involuntary evacuations; pulse 130, very indistinct; heart's impulse not to be felt over any part of the region; sounds absent at the left side; very feeble at the right. Ordered twelve ounces of wine, musk, and carbonate of ammonia, &c.

17th. Clammy perspirations; dysphagia. Died.

Examination twenty-six Hours after Death.—The vessels of the scalp were loaded with blood; the large veins of the pia mater much congested; the convolutions not altered in colour or consistence, but apparently slightly flattened; a good deal of serum was contained in the ventricles.

The heart presented some minute patches of ecchymosis on its outer surface; on making a section of the walls of the left ventricle the same loss of muscular fibre and greyish mottled appearance as in the last case was found. No fluid could be expressed from this part; it had the same short granular fracture as in the last case, breaking under the handle of the scalpel like liver; the substance of the whole organ softened, and allowing the finger to pass through it with ease.

CASE III.—Mary Carolan, æt. 30, admitted on the eighth day of maculated fever.

9th. Delirium ; heart natural ; pulse 130, weak.

10th. Heart's impulse much diminished ; sounds short and clear ; eight ounces of wine, carbonate of ammonia.

11th. Impulse not to be felt ; first sound quite absent at left side ; both feebly heard at night ; pulse very weak and indistinct ; wine, eight ounces, quinine and ammonia.

12th. Heart as on yesterday ; petechiæ livid.

13th. Sounds scarcely at all audible. Died on the 15th.

Examination.—The coronary veins of the heart gorged with treacly dark blood ; cavities contained a quantity partially coagulated ; the substance of the heart dark, soft, and infiltrated with very dark blood ; the muscular fibres perfect ; head not examined.

In the foregoing cases the condition of the heart, after death, corresponded with the alterations of the impulse and sounds during life. In the following, which was one of the most eminently putrid that ever came under my observation, the state of the heart was not indicated by the phenomena during life.

CASE IV.—Darby Kearns, æt. 26, of very intemperate habits, admitted on the 4th of August.

Three weeks since, after passing a day standing in the water, fishing, he was attacked with rigor, followed by intense heat, stiches in the sides, and pain in the abdomen. About a week after seizure, a purple rash appeared over the body ; numerous boils also appeared on his thighs and arms, which, on bursting, discharged black tarry blood ; he had also hæmorrhages from the nose, stomach, bowels, and bladder.

On his admission the skin was thickly covered with black petechiæ ; the boils discharged immense quantities of gummous blood, without any trace of pus ; his face was anxious and contracted ; pulse rapid, small, and sharp ; the heart's impulse strong ; and the sounds loud and clear. He died soon after admission.

Examination after Death.—On cutting into the boils, the cellular membrane, for a considerable space, seemed softened

and filled with semifluid blood. The heart was soft and flabby, pitting on pressure ; filled with fluid blood ; no loss of muscular fibre ; the mucous membrane of the stomach dark coloured, and highly injected.

I shall adduce two cases, out of many, of the successful exhibition of wine and opium in active delirium, with feeble heart.

CASE V.—James Sweeny, middle aged, was found lying at the hospital gate, on the 15th August. He was unable to give date or other particulars of his illness. The surface was cold, and covered with petechiæ ; he had delirium, general and constant subsultus, with twitchings of the muscles of the face. The first sound of the heart was quite inaudible at the left side ; both were short and clear over the base. His head was shaved, and a cold wash applied ; a blister was applied to the neck, and he was ordered eight ounces of wine, with musk, and carbonate of ammonia.

16th. Excessive and general subsultus ; noisy delirium ; laughing and singing ; heart as yesterday. Eight leeches were applied to one of the temples, and a blister to the scalp ; wine increased to twelve ounces.

17th. Had a perfectly sleepless night ; subsultus and delirium continue ; *the pupils much contracted*. Wine to be increased to sixteen ounces, and half an ounce of the tartar emetic and opium mixture to be given every second hour.

18th. Soon after taking the second dose of the opiate he fell asleep. He slept during the whole night, and is every way much improved. He convalesced rapidly.

CASE VI.—James Caffrey, æt. 27. On the tenth day of fever much maculated ; delirious, and has difficulty of swallowing. A blister was applied to the nape of the neck, and he was ordered four ounces of wine.

11th. He became violently delirious and unmanageable. Two doses of the tartar emetic and opium mixture were given, after which he slept for a short time, but after two or three hours he became again delirious and watchful ; much subsultus ; eight ounces of wine ; a blister to the scalp.

12th. Delirium so violent as to require restraint ; singing and swearing incessantly ; occasional dysphagia, which yielded to a sinapism applied over the throat ; involuntary evacuations, tremor and subsultus ; the pulse rapid and weak ; the heart feeble, and the first sound inaudible ; *the pupils were contracted to a point* ; strong ale was now given him in small quantities, frequently, but without any sedative effect.

13th. The extremities were becoming cold, and he had now been forty-eight hours without sleep ; the delirium was so violent as to require the constant efforts of the nurse to keep in bed. He was ordered an ounce of the tartar emetic and opium mixture every hour. After the seventh dose of this medicine he fell asleep, and from that time recovered rapidly.

The heart continued feeble for some days.

The recovery in both these cases was, I think, fairly to be attributed to the opium ; and, as far as they can be relied on, they tend to shew that in cases of fever, with a weak heart, opium may be given, although the pupil may be contracted. This symptom existed in a very marked degree in both, and it has been said by a high authority, “ whenever, in attending a case of fever, you meet with this contracted state of the pupil, even in a slight degree, although your patient may be restless, and greatly in want of sleep, beware of opium.”*

The same rule has been laid down for the treatment of delirium tremens ; and is no doubt well founded in both diseases, but admits of many exceptions in both. Whether the rule and its exceptions have reference to the conditions of the cerebral circulation connected with the condition of the heart, which I think likely, farther experience must decide. The following cases afford illustrations of the connexion between certain states of the cerebral circulation (the opposite of those already described) with a strong heart.

* Dr. Graves on the state of the pupil in typhus, Dub. Med. Jour., No. 39.

CASE VII.—*Strong Heart, arterial Congestion of the Brain.*

John M'Donnell, admitted on the sixth day of fever ; maculated ; has low delirium, with a tendency to stupor ; involuntary evacuations ; is unable to protrude the tongue ; extremities cold ; pulse 100, and weak ; heart's impulse strong and perceptible to the sight ; both sounds audible.

The head was shaved, and a cold wash applied ; eight leeches were applied behind the ears, and a blister to the nape of the neck.

Hab. Calomelanos gr. ij. nocte maneque.

7th day. Much prostration, with muttering ; delirium, moaning, and tendency to stupor ; eyes suffused ; can protrude the tongue better, but does not swallow well ; lies on his back ; pulse 112, weaker than yesterday ; heart's impulse greatly reduced in strength ; first sound absent at the left side.

Rep. Calomel. Hab. Vini ℥iv.

8th. Has had no sleep since his admission ; lies on his back in a sort of stupor ; involuntary evacuations ; great difficulty of swallowing, or of protruding the tongue ; pulse 120, weak ; heart's impulse much stronger ; sounds distinct. The wine, calomel, and cold wash to the head continued.

9th. Was seized with convulsions, which continued for three hours. The fit subsided after the temporal artery was opened and five ounces of blood withdrawn. He had afterwards a slight return ; stupor increased ; one eye half closed ; moans, and can scarcely swallow ; pulse scarcely to be felt at the wrist ; heart acting violently ; cold affusion to the head.

Hab. Calomelanos.

Pulv. Jacobi Ver. āā. g. iij. 3tiis horis.

10th. Sinking ; no return of the fit ; heart's impulse strong. Died in the evening.

Examination ten Hours after Death.—The surface of the convolutions of the brain appeared slightly flattened, their surface was red, and minutely injected ; the ventricles contained a

large quantity of serum. The heart was firmly contracted and empty; the substance of its ventricles firm, and the muscular fibres perfectly healthy in appearance.

CASE VIII.—Mary Hoge, æt. 16, admitted on the twelfth day of fever. Appeared to go on well, with the exception of slight bronchitis; for which she got infus. lini cum tart. emet. and hydrarg. cum creta cum pulv. ipecacuanha, until the evening of the nineteenth day, when she became delirious.

20th. Leaves the bed; raves a good deal; cough and expectoration diminished; heart's action strong; impulse felt all over the region. The head to be shaved, and cold applied. Infus. lini and tartar-emetic; four ounces of wine.

21st. No change; a blister to the scalp.

23rd. Had a restless night, with much delirium; face contracted and pale; extremities cold; pulse weak and thready; heart's impulse strong and jerking; some stupor. Sinapisms to the legs.

22nd. Stupor. Died at five p. m.

Examination eighteen Hours after Death.—Head, surface of brain slightly injected; arachnoid opake, and thickened in patches, with considerable subarachnoid effusion; substance of brain unusually firm, and extremely vascular; a considerable quantity of serum in the ventricles and at the base; its large arteries at the base loaded with blood; lungs healthy; heart contracted and firm; perfectly healthy in appearance in all respects.

CASE IX.—Biddy Gerrard, æt. 22, admitted on the sixth day of fever; maculated.

10th. Delirious. Head shaved, and cold applied; a blister to the neck; six ounces of wine.

11th. Pulse quick and sharp; heart's impulse strong; delirium. Wine reduced to four ounces.

12th. Delirium and subsultus; watchfulness; pulse weak; heart jerking and strong.

Hab. Mist. Tart.-emet. cum Opio 3ss. 2ndis horis.

Wine to be discontinued.

She appeared to sleep quietly after the third dose of the mixture ; but after about a couple of hours became comatose, and died in an hour. No examination was permitted.

CASE X.—About four days after the termination of the last case, I was hastily summoned to see a young man, on the ninth day of maculated fever. On the evening before, (having previously been ordered a little wine), he was restless and delirious, and his medical attendant prescribed for him Dr. Graves's mixture of tartar-emeti with opium. I was informed, that some time after taking it, he fell asleep, but in some time afterwards was found, on attempting to arouse him, to be insensible, and unable to speak or swallow. When I saw him, (at two A. M.), he had not spoken, and then lay perfectly motionless and rigid, with the eyes turned towards the ceiling, the pupils contracted, and quite immoveable on the approach or withdrawal of light ; his jaw was fixed, and he showed no consciousness whatever on being spoken to ; the respiration was accelerated, the skin warm ; pulse rapid and sharp ; the heart beating violently against the side, and the sounds loud and distinct.

Here was a case in which precisely the same consequences were following the exhibition of opium as in Gerrard. The examination after death of Hoge and M'Donnell had showed, that when an excited state of the heart was present with delirium, the latter depended on an opposite condition of the cerebral circulation, to that in which wine and opium were so useful. The indications here were to lower arterial action. I therefore advised such a plan of treatment to be pursued. About ten ounces of blood were taken from the temporal artery ; while the blood was flowing, the pupil began to open and close alternately, and before the bleeding ceased his eye followed objects about the room. In a few minutes after he spoke ; and, on recovering his intelligence, stated, that he had been perfectly unconscious during the period preceding his being bled. I advised that his head should be kept constantly wetted with cold water ; all stimulants abandoned, and calomel and James's powder, three grains of each given every third hour.

In the evening he became very delirious, leaving the bed, and talking loudly. He then got, along with the above powders, a mixture of two grains of tartar-emetic, in eight ounces of camphor mixture. The delirium continued for some days, but he had no farther serious symptoms, and recovered perfectly.

In the following case the symptoms were all of a slow type, but acting upon the same principles as in the last, the same plan was pursued with success.

CASE XI.—Henry Keely, æt. 40; admitted on the ninth day of fever. On the 12th, delirious. 13th. Much changed, heavy and stupid; eyes suffused; raves constantly, and flings off the bed-clothes, making attempts to leave the bed; has involuntary evacuations; pulse 110, and full; heart's impulse strong; both sounds natural.

Mist. Camphor. ℥ viij.

Tartar-emetic g. ij.

Moschi ℥ ss.

Liq. Anod. Hoffman. ℥ ij.

Sum. ℥ j. 2da q. q. horâ.

The head to be shaved, and cold water kept constantly applied; a blister to the neck.

14th. No material change; involuntary discharge of urine; violent delirium; requiring constant restraint; cannot be made to protrude the tongue; has not slept since yesterday; has occasional difficulty of swallowing; pulse 106; heart strong; two grains of tartar-emetic were added to the mixture of yesterday; six leeches applied behind the ear, and a spirit wash to the head.

15th. Became quiet soon after the application of the leeches; is disposed to sleep, and less restless and delirious; protrudes his tongue; pulse 80, and soft; convalesced rapidly. In some cases of maculated fever the forcible impulse of the heart can, with difficulty, be subdued; in one, the notes of which are before me, it continued for more than a fortnight, resisting a

bleeding from the arm ; one from the temporal artery, and three successive applications of leeches to the head, with cold affusion, free doses of tartar-emetic, mercury, &c., and in the end subsided gradually to a natural state.

But it is more usual to meet with a variable condition of this organ, in which it either becomes feeble after the depletion necessary for subduing early delirium and excitement, or shews signs of increased activity, after the stimulation required to overcome previous feebleness ; both changes are accompanied with danger,—the last more especially,—and both require to be met to a certain extent by change of treatment ; in the first, I have often seen wine, and more especially opium, produce an admirable effect ; to do so, it will sometimes require to be given to a very great extent, as in the following instance.

CASE XII.—Ellen Lynch, æt. 35, admitted on the eighth day, of fever ; heart's impulse much stronger than natural, both sounds loud and distinct ; pulse 120, and feeble ; passed about twenty hours after her admission in most noisy delirium ; in the evening the head was ordered to be shaved, and eight leeches applied behind the ears ; cold to the head, and a mixture of four grains of tartar-emetic in eight ounces of camphor mixture.

9th day. Passed a quiet night ; delirium abated soon after the leeching, and she had several hours' sleep ; quite collected ; has no recollection of anything that occurred yesterday ; pulse 100, and very weak ; heart's impulse much weaker ; sounds distinct.

10th. No delirium ; pulse and heart as yesterday. The tartar-emetic omitted, and a saline mixture with hydrarg. cum cretâ ordered.

11th. No delirium ; heart natural.

12th. Delirious ; if possible more noisy than before ; involuntary evacuations ; pulse 115, weak ; heart's impulse feeble. Eight leeches behind the ear ; cold to the head ; tartar-emetic.

12th. Involuntary evacuations; lies on her back; screaming almost incessantly; has not slept since last report. Cold affusion has been several times tried, but without the least effect. Pulse 120; very weak and irregular; heart's impulse very feeble; sounds short and clear; the second preponderating. A large blister to the scalp; ale; occasionally wine; and the tartar-emetic and opium mixture.

13th. She took an ounce of the mixture every second hour, without any effect till after the eleventh dose, when she slept for a short time, and has since been much more quiet.

The eyes appear red, as if from want of sleep; pulse 115; somewhat fuller and more regular; heart's action weak; second sound preponderating. Wine to be continued.

14th. Low delirium occasionally, but sleeps a good deal, and is manageable; heart's impulse decidedly stronger than before, and the first sound more distinct; pulse much fuller, and 84. Wine continued.

15th. Heart natural; pulse 77; soft and full; wine discontinued.

Convalesced rapidly.

This case bears a close resemblance, in some respects, to those in which, after some inflammatory affection, has been controlled by free depletion, a similar set of symptoms, arising from an opposite state of the circulation of the brain, has been successfully treated by opposite measures to those first employed.

The resemblance is, I apprehend, owing to the pathological cause being the same in both; a diminished supply of arterial blood to the brain; a diminution caused, in the case before us, by the deficiency of the propelling power of the heart, and capable of being recognized by the diminished impulse and feeble first sound of that organ. That this deficiency of muscular power in the heart is very frequently connected with softening of its structure, appears evident; but I much doubt that any such change is absolutely necessary to its production, since I have

occasionally observed its signs to be present during a short period of cases, which, after death, were found to have had a firm and healthy heart, while in the others the signs have been totally wanting at times during life, and the heart has yet been found softened.

In the above selection of cases, I have confined myself to examples of the connexion between the state of the heart and cerebral affections in fever. I have met with a few instances in which the study of the heart's phenomena, in pulmonary affections in the same disease, led to interesting and important results. These, however, were not sufficiently numerous to warrant any practical general conclusions being founded upon them at present.

Those which I have now for some time found worthy of confidence, with reference to the cerebral symptoms, are :

1. That these are of two classes, not distinguishable by their degree, or the habit of the patient, or duration of the disease, but by the opposite states of the heart's action.

2. That so long as the signs are those of a strong and active heart, delirium may be best controlled by bleeding, cold, tartar-emetic, and other remedies calculated to lower arterial action, and that wine and opium are, in this state, most injurious.

3. That when delirium is found to be accompanied by the signs of a feeble heart, the remedies calculated to excite the activity of the heart and arterial circulation will be most useful, especially wine, opium, and blistering the scalp.

BIBLIOGRAPHIC NOTICES.

The Cure of Strabismus by Surgical Operation. By W. MACKENZIE, M.D., one of the Surgeons to the Glasgow Eye Infirmary, &c. Pamphlet, pp. 30. 1s.

WE have little doubt that our readers, like ourselves, are by this time quite tired of squinting in all its forms, loathe the very mention of a new mode of dividing the little distorting muscle, and are quite satisfied with the present stock of knives, forceps, scissors, and hooks ; nor can we suspect them of being less disgusted with the quackery and puffing which the subject has brought forth. We should not, therefore, have called their attention to this threadbare topic, but that the pamphlet before us has claims of no common kind ; its author is so respectable, his works on the eye and its diseases so admirable and so widely circulated, his opinions of such weight and so often quoted, that the late appearance of his essay gives it a peculiar value, as furnishing us with the matured judgment of a great practical oculist on a new operation, but one which has been sufficiently long before him to have afforded opportunities of practical experience.

The pamphlet, though small, contains all that is necessary to be known on the subject—the history of the operation and its principle, the varieties of strabismus, the cases requiring one, and those requiring both eyes to be operated on, the prognosis, &c. &c. Before venturing to operate he laysd ownthenecessity of a careful examination of the case ; we shall quote a part of his directions on this head :

“ The *healthy or unhealthy condition of the textures* of the eye should be noticed, and especially the state of the conjunctiva and cornea.

“ The operation is more difficult of execution if the eyeball be small and sunk in the orbit, than if it be large and prominent.

“ If the eyeball be large, it will be less acted on by the inner fibres of the levator and depressor, unless their tendons are broad in

proportion, which Mr. Elliott has not observed to be the case. In such circumstances, therefore, parallelism of the eyes is likely to be restored by the division of one abductor.

“ If the eye has at any period suffered much from inflammation, which is sometimes evident from specks on the cornea, and in other cases from the conjunctiva, especially at the inner angle of the eye, appearing darker, drier, thicker, and less moveable than natural, there is a probability that the conjunctiva and the structures which lie between the conjunctiva and the sclerotica are unnaturally adherent, a circumstance which is apt to render the operation tedious, and less successful. A squinting child being seized with scrofulous ophthalmia, is very likely to have the eye fixed in the inner canthus by adhesion of the subconjunctival textures, till, on the inflammation subsiding, and the eye becoming again capable of being used, the unnatural connexions are gradually elongated into cellular bands, by the action of the abductor.

“ A speck on the cornea of a squinting eye is no objection to the operation, provided the other eye is the better of the two ; but if the squinting eye is that on which the patient chiefly depends for vision, the distortion may be an instinctive provision, by which he sees more than he could do, were the eyes straight. In such a case, to cure the strabismus might be the means of materially abridging the range of vision of the eye, and ought, therefore, to be avoided.

“ Alternate strabismus may be a means, when both corneæ are partially opaque, of permitting the rays of light to penetrate through the clear portions of the corneæ, and thus reach the retinæ. Were the strabismus in such a case cured by an operation, an artificial pupil in each eye might be required before the former degree of vision could be regained.

“ The *extent* and *acuteness of vision* of each eye separately, and of both together, should be carefully examined before proceeding to the operation, in order that we may be able afterwards to form a correct estimate of its effects.

“ The vision of a squinting eye is, in general, defective, so much so that the patient can seldom read an ordinary type with it. In some cases it does not serve him to read a large type, nor even to know one person from another. There is reason to believe, that the vision of the one eye being so much more impaired than that of the other, often originates in the wearing of a shade over that eye.

“ In non-alternating* cases it is generally possible to remove the distortion from the better eye to the worse, by bandaging the former, and thus improving the vision of the latter by use.

“ In some rare instances, a part of the retina to one side of the vertex is more sensible than the vertex itself. When this is the case the distorted eye remains so, although the opposite eye is closed, and

* “ Cases in which the distortion seizes sometimes the one eye, and at other times the other.”

the patient regards an object straight before him ; but on moving the object to one side, the distorted eye becomes straight.

“ Occasionally the distorted eye is completely amaurotic ; and in this case the operation must be regarded merely as a means of improving the patient’s appearance.

“ In alternating strabismus the vision of the two eyes is about equal. In strabismus, without alteration, the degree of distortion and the inferiority of vision of the worse eye are generally proportionate. The eye whose vision is the more imperfect is always to be chosen as the subject of operation.

“ When the vision of both eyes is good, but the convergence great, two operations will be required. The convergence being slight, although the vision of the worse eye is very bad, one operation will be sufficient. Limited abducting power and smallness of the eyeballs are more likely to render necessary the division of the second abductor than any state of the vision.

“ The *date*, *permanency*, and *exciting cause* of the strabismus should be inquired into.

“ There are children, and even adults, who occasionally squint, but can prevent the distortion when on their guard. A recent and transient strabismus is not unfrequently the result of intense use of the eyes, mental agitation, or irritation communicated from the abdominal viscera to the brain. Such cases should be treated with rest, purgatives, tonics, and proper exercise of the eyes. It is only when strabismus has continued for a considerable length of time, generally for years, and has attained the character of being *confirmed*, that we should think of remedying it by operation.”

He is above the littleness of making some infinitesimally small addition to, or subtraction from, a well-known instrument, and then advancing it as his own new and improved hook or forceps, as the case may be. We shall furnish our readers at full length with his valuable advice as to the instruments to be used, and the manner of performing the operation :

“ The tendon of any of the recti might be divided in many different ways.

“ A fold of conjunctiva, over the tendon of the abductor for example, might be raised with a dissecting forceps, the fold divided by the stroke of a small scalpel, and by another stroke or two, the tendon, thus exposed, might be cut across.

“ A small snip being made through the conjunctiva, opposite to the lower edge of the adductor, one blade of a pair of scissors might be pushed up behind the tendon, the scissors closed, and the tendon and conjunctiva divided at once.

“ M. Guerin’s operation is said to be subconjunctival. He pushes, I suppose, a narrow knife through the conjunctiva, and between the tendon and the sclerotica. Then turning the edge of the knife to-

wards the tendon, he divides it, leaving the conjunctiva by which it is covered entire.

“ The danger that the sclerotica might be opened in such modes of operating, especially were the operation attempted by an inexperienced hand, is sufficiently obvious ; and, therefore, a safer, although a little more operose, plan of proceeding ought to be adopted.

“ The instruments more immediately necessary for the operation are :

“ 1. A small dissecting forceps, or tooth forceps, such as that represented in *fig.* 26, of my Practical Treatise on the Diseases of the Eye.

“ 2. A pair of small, straight, blunt-pointed scissors, which cut perfectly.

“ 3. A blunt hook, about $\frac{1}{40}$ inch thick, and the bent part $\frac{9}{20}$ inch long.

“ 4. A fine sharp hook, such as is commonly contained in cases of eye instruments.

“ Wire specula, the part which presses on the eyelid being concave instead of convex, are sometimes used for retracting and fixing the eyelids ; but the fingers of an assistant produce less uneasiness to the patient, and do not interfere so much with the manipulations of the operator.

“ A small bit of sponge, with cold water, should be at hand.

“ 5. *Position of the Patient and Assistant.*—If the patient is an adult, he should be placed on a seat without a back, so that he may lean his head on the breast of an assistant standing behind him. If the patient possesses ordinary command over the muscles of the squinting eye, when the opposite eye is closed, so that he can turn it considerably from its distorted position, and keep it so, one assistant may be sufficient ; but if he cannot do this, a second assistant is necessary. If the patient be a child, more assistants than two may be required ; and the patient, being wrapt in a sheet, so that his arms and legs are kept at rest, is to be laid on a table, with his head on a pillow.

“ *Operation.*—The opposite eye being covered with a compress and roller, an assistant standing behind the patient, with the forefinger of one hand raises the upper eyelid, and with that of the other depresses the lower.

“ The operator, standing before the patient, desires him to turn his eye, as much as he can, in the direction which puts on the stretch the muscle about to be divided. If the case is one of convergent strabismus, he desires him to look outwards, to his temple ; if it is one of divergent strabismus, he desires him to look inwards, to his nose.

“ We shall suppose the case to be one of convergent strabismus. The reader will easily conceive that many of the observations which occur in these pages regarding the cure of convergent strabismus, may be applied to that of the divergent variety, by substituting *abductor* for *adductor*.

“ The steps of the operation, then, are as follows :

“ 1. With the forceps, the operator lays hold of the conjunctiva transversely, midway between the edge of the cornea and the caruncula lachrymalis, and raises it in a horizontal fold.

“ 2. With the scissors he snips this fold through vertically, along with the subjacent cellular substance, and then enlarges the incision, thus begun, upwards and downwards, so that it extends to half an inch in length.

“ The incision should not be nearer the cornea than half way between its edge and the caruncula, lest in attempting to pass the blunt hook under the tendon the operator find it impossible to do so, from the close attachment of the tendon to the sclerotica ; nor ought it to be farther from the cornea, else the operator will require to penetrate deep by the side of the eyeball to reach the muscle.

“ The conjunctiva is merely to be slit up to the extent specified ; it is not to be dissected from the subconjunctival fascia, nor is any portion of it to be cut away. In this way the wound will heal more readily, and the eye be less apt to protrude after the operation.

“ The incision of the conjunctiva is generally made in a vertical direction. In operating for divergent strabismus it appears to be Mr. Elliot's plan to open the conjunctiva horizontally. Perhaps the incision made in this direction will gape less than a vertical one, but more separation of the membrane from the subjacent fascia will be required, to bring the tendon into view. A frænum will also be apt to form between the cicatrice of the conjunctiva and the external canthus.

“ 3. The patient again averting the eye as much as he can, and the parts, if obscured with blood, being sponged, the operator insinuates the point of the blunt hook under the lower edge of the tendon of the abductor, and slides it up between the tendon and the sclerotica, till its point appears above the upper edge of the tendon. If there is any difficulty in bringing out the point of the hook at the upper edge of the tendon, from its carrying the fascia before it, the operator snips this through with the scissors, and frees the point of the hook.

“ In this part of the operation, unless the incision be nearer than usual to the cornea, or the operator take the trouble of removing a portion of the fascia, it is rarely the case that the fibres of the tendon are distinctly perceived. They are obscured by the fascia, which is now generally injected with blood. The operator, therefore, introduces the point of the hook where he thinks the lower edge of the tendon should be, and pressing it close along the surface of the sclerotica, he takes up on the hook everything that lies between the sclerotica and the surface exposed by the incision of the conjunctiva. The hook, entering the cavity of the capsule, where the cellular connexion of the tendon to the sclerotica is naturally very loose, is easily passed beneath the tendon. This part of the operation, therefore, gives little pain, unless the hook is not sufficiently bent, or the bent

part too long, so that it must be brought out over the eyelids, and by putting the muscle on the stretch, drag severely on the eyeball.

“ It is seldom that the patient is unable to avert the eye sufficiently, to allow the first and second steps of the operation to be performed, with no farther assistance than what has now been mentioned; but it sometimes happens that he cannot continue the eversion, at least to the necessary degree, to permit of the third steps. In this case the operator lays hold with the sharp hook of the tunica tendinea, or, in other words, of the tendon of the muscle, where it is exposed through the incision of the conjunctiva, and without passing it deeper than the surface of the sclerotica, he moves the eye into the everted position. This he effects with a very slight degree of traction. He then intrusts the sharp hook, thus fixed, to an assistant, and proceeds to pass the blunt hook.

“ If artificial eversion is called for at the commencement of the operation, which sometimes is the case, especially in children, the operator passes the sharp hook through the conjunctiva and into the tunica tendinea, about one-fifth of an inch from the inner edge of the cornea, and having drawn the eye into the position required, intrusts the sharp hook to an assistant, till the first, second, and third steps of the operation are completed. After the blunt hook is passed under the tendon, the sharp hook may be removed.

“ At whatever step of the operation the sharp hook is used, it must be fixed in the tunica tendinea. It is useless to fix it in the conjunctiva; as this membrane, when we endeavour to move the eye by traction on the hook, yields, and slides away from the subjacent textures. To penetrate through the sclerotica with the sharp hook is unnecessary.

“ 4. The operator now takes the blunt hook in his left hand, and carrying the handle of it towards the temple, with the scissors he immediately divides, in ordinary cases, the tendon of the muscle from below upwards, and nearer the caruncula than where it is over the hook.

“ In this manner of operating the muscle will most frequently be divided just where the tendinous part meets the fleshy fibres.

“ If the distortion is slight, the handle is to be carried over the nose, and the tendon divided nearer the cornea than where it lies over the hook, and close to its insertion.

“ If the distortion is great, the operator, before proceeding to use the scissors, should separate a considerable portion of the internal surface of the muscle from the sclerotica. Dr. Ammon does this by pressing the blunt hook repeatedly towards the cornea, and back again towards the caruncula. Mr. Elliot, for the same purpose, introduces a second hook, and steadies the eye by means of the one already under the tendon. The tendon being then drawn into view, the muscle is to be divided. If hypertrophied, a part of it should be cut out, which is best accomplished by passing a ligature under it with a blunt needle, tying the ligature upon the muscle, dividing the latter

nearer the caruncula than where it is within the ligature, and lastly, cutting off the ligature, with the portion of the muscle which it embraces.

“ If, in the third step of the operation, only a portion of the tendon, and not its whole breadth, appears to be upon the blunt hook, the division with the scissors should not be immediately proceeded with ; but, with another and smaller blunt hook, the operator should take up the remaining breadth of the tendon, and having divided this portion with the scissors, proceed to divide the principal portion, which he has on the first hook. It must be remarked, however, that when the tendon is raised and drawn forwards on the concavity of the blunt hook, it sometimes assumes a round and contracted appearance.

“ If the operator has any doubt about his having divided the whole of the muscle, he should not proceed to ascertain the position of the eye, and much less incautiously announce to the patient that the operation is finished, until he has examined with the blunt hook, and snipped across any portion which may have escaped. The mark of the semicircular insertion of the muscle, with its minute tendinous fibres, adhering to the sclerotica, will show distinctly that the muscle has been divided.

“ Such, then, is the operation for convergent strabismus. That for the divergent variety is generally considered rather more difficult, owing to the greater narrowness of the space between the eyelids, and the insertion of the abductor being farther from the cornea than that of the adductor. As to this, a good deal will depend on the size and prominence of the eye.

“ Upon the same general plan the levator or depressor is to be divided, in cases of distortion upwards or downwards.”

The following observations are among the most important in the pamphlet ; they offer an explanation of, and remedy for, one of the most perplexing circumstances of the operation :

“ It is often the case that, notwithstanding the complete division of the tendon, and its being carefully separated from its cellular attachments, the distortion still continues, without any, or with merely a slight diminution.

“ At one period the general opinion of operators regarding such cases appears to have been that the disease was confined to the worse eye, the better eye being so little affected as to pass for being sound, and that the want of success attending the division of the adductor was to be remedied by dividing the levator or depressor, or one or other of the obliqui. Farther experience, however, has shown that any interference with these muscles is unnecessary, if the adductor be carefully examined, and liberated from the adventitious adhesions by which it is often tagged to the neighbouring parts.

“ Another notion, at one time pretty general, was, that although the original distortion should still remain in some degree after the

adductor was divided, the operation was not to be immediately deemed a failure. It was urged, especially if the patient, previously to the operation had been unable to bring the patient to the central position, that the abductor might require some time to recover its contractile power, so that hours, or even days, might elapse before the eye reached the centre of the orbit, although ultimately a perfect cure might be obtained.

“ This gradual amendment is not to be trusted to. On the contrary, an eye that is not placed in the centre of the orbit, at the termination of the operation, rarely, if ever, assumes of itself that position afterwards, but generally becomes worse. It is not, however, by making a clean dissection of the whole nasal side of the sclerótica, nor by dividing other muscles than the adductor, that the rule is to be fulfilled, *always to leave the eye straight*.

“ Mr. Elliot, from a careful consideration of cases in which the division of the adductor of the inverted eye failed in removing its distortion, concluded that the disease could not be regarded as confined to one eye, since, when the better eye was closed, the worse one after the operation, as well as before it, became straight, while on raising the lid of the better eye it was found inverted, though the position of the eyes instantly became reversed when both were opened. The simple experiment of closing the better eye after the operation, shows, by its rendering the worse eye straight, that the remaining distortion which is seen in the worse eye, when both are open, does not depend on any shortening of the fibres of the levator, depressor, or obliqui, requiring that they should be cut, or any semi-paralytic state of the abductor, from which it may slowly recover, but on the original cause of the disease—a morbid action of the motor nerves.

“ In such cases, then, of mutual convergence, in preference to the division of the levator or depressor, which, though it might restore parallelism, would leave the eye prominent, and limit its future movements, and in place of trusting to exercise of the eyes, which, though it might succeed in some instances, after a practice of weeks or months, in rendering the first eye straight, would fail to do so in those cases where, from various causes, such as a speck of the cornea, partial cataract, or insensibility of the vertex of the retina, the vision of the eye was incapable of being much improved by exercise, Mr. Elliot had recourse to the immediate division of the same muscle of the opposite eye, and with signal success. To estimate fully the merits of this improvement, which certainly in importance stands next to the original invention of the operation, the reader should study with care the cases detailed by Mr. Elliot, in his paper in the Edinburgh Medical and Surgical Journal, already referred to.

“ 5. It sometimes happens that the inversion is instantly removed from the worse eye as soon as its adductor is divided, and appears, though not in the same degree, in the other eye; or, when the strabismus is divergent, the eye operated on becomes straight, and the other everted.

“ Mr. Elliot has fully established the immediate division of the same muscle of the eye to which the distortion has shifted, as the means of rendering the eyes parallel in such cases.

“ Whether the strabismus, then, be convergent or divergent when the division of the adductor or abductor, as the case may be, of the worse eye fails to restore parallelism, the distortion either remaining in the eye which has been operated on, or shifting to the other, in consequence of continued mutual convergence or divergence, it is a general rule that the same muscle of the better eye should be divided.”

The extracts we have made from this essay will enable the reader to judge of its general excellency, as every other subject is equally well handled. As it is published as an appendix to Mr. Mackenzie's large treatise on diseases of the eye, of course all those who have that work will render it complete by the addition of this, and to those who have not such inducement we can only say, that if they wish for information on the nature and treatment of strabismus they could not get any better treatise.

Dictionary of Practical Medicine. By JAMES COPLAND, M.D., F.R.S. Part VII.

ALTHOUGH the subscribers to the Dictionary may complain of the slowness of the appearance of its Parts, it would be difficult to find any other fault with the work, its continued excellence proving that the delay in all probability arises from the anxiety of the author to sustain its character, and his desire to let nothing issue from his hands unworthy of his deserved reputation. The present Part contains articles on Insanity in all its forms, Diseases of the Intestines, Irritability, Irritation, Itch, and ends with the Inflammatory Diseases of the Kidney, and their treatment. The first article displays extraordinary labour, erudition, and judgment; it would be unprofitable to attempt embracing the whole of the wide subject of insanity in our notice, we think it better to confine our observations to one of its most important divisions, viz., suicidal insanity. Dr. Copland agrees with most of the authors who have lately written on the subject, that suicide had increased fearfully of late years, but he is far from allowing what our coroners' inquests would imply that it is always an act of insanity:

“ At the present day, the *opinion*,* by no means generally received, although very commonly acted upon in this country, that

* In respect of suicide, opinion is as strong as a legislative enactment, inasmuch as it determines the coroner's jury as to their verdict—this act being always found by them as that of insanity.

suicide is always an insane act, leaves every member of the community at liberty, without any degrading penalty attached to the act, to dispose of his own life as he pleases, without reference to the claims of those depending upon him, or of society in general. The knowledge that no indignity will result to his body, and no discredit to his memory, thus becomes an incentive to self-destruction ; and, even when it is not an incentive, it cannot, at least, impose any restraint upon an impulse to commit this act, when a weak-minded person is subjected to chagrin, passion, and misery."

He divides the causes of suicide into the following heads :

" *A. The exciting causes, or the circumstances determining self-destruction*, are very diversified. Whatever may be the motives or incentives to this act, they promise to the imagination something preferable to life, or a lesser evil than existence. 1st. Suicide may be committed in circumstances, or with motives calculated to excite admiration, or, at least to preclude the imputation of blame ; but such occasions are rare ; and although not infrequently recorded in ancient history, they rarely or never occur in modern times, or in the present state of society. 2ndly. Suicide is often caused, in some countries, by religious rites or institutions, by received notions respecting injured honor, and by hopes of thereby passing into a happier state of existence. 3rdly. It is very frequently occasioned, in barbarous communities, by a species of nostalgia, by forcible removal from home, or by slavery, and by ill-usage, in connexion with a belief of thereby returning to former abodes in another state of existence. 4thly. It occurs very frequently during delirium and mania, in consequence generally of some illusion, false perception, or error of judgment. 5thly. During melancholia it is very commonly attempted ; and the idea of committing it is generally entertained long before it is perpetrated. 6thly. It is sometimes also attempted in almost all the other forms of partial insanity, and particularly those attended by depression and anxiety respecting a state of future existence, or by unsettled views of religion. 7thly. Suicide is often suggested by the emotions consequent upon reverses, wounded self-love, chagrin, and contrarieties of all kinds ; and by the violence or intensity of passion and anger : the enraged feelings, being incapable or unable to exhaust themselves upon the object which excited them, recoil upon themselves, and often thus originate a suicidal impulse which is not always successfully resisted. 8thly. A suicidal suggestion may arise from various circumstances of a negative or passive kind ; from satiety, from ennui, from the want of excitement, from the excess of gratification, and the exhaustion of all its sources, &c. In such circumstances, the idea may long be entertained, and, ultimately, either carried into effect or laid aside, from a change in the mental or physical state of the individual. 9thly. It may proceed from a mental infection or sympathy, from the details, contained in the public caterers to the gratification of the more debased of our moral sentiments, of various modes or instances of self-

destruction, and from a desire, during states of chagrin or disappointment, of obtaining notoriety by the manner of carrying it into effect. 10thly. It is often committed in order to avoid public exposure and ignominy, or punishment of a severe or lasting kind. 11thly. It is more rarely had recourse to in order to escape from violent pain, or the various miseries attending want and destitution, and from feelings of despair. 12thly. From remorse or self-reproach. 13thly. From a morbid or insane impulse, without any other obvious mental disorder. 14thly. From a species of fascination, as when looking down from great heights. 15thly. By weak minds in a state of irritation and chagrin, in order to injure the feelings, to occasion regrets, and thereby to revenge slights or contrarieties on those who caused them. 16thly. Suicide may be mutual and reciprocal, caused by the same feelings, and by the same or different means. 17thly. It may follow murder. 18thly. It may be simulated. Certain of these require further remark."

Dr. Copland says, that an impulse to commit suicide is often developed in the early stage of congestion of, or inflammatory determination of the blood to the brain, and that before or at the time of the impulse insane delusions or acts may be manifested. That in such case, if the manner of committing the suicide be such as to relieve the inflammatory or other congestion of the brain, as, for instance, opening the blood-vessels of the neck, the patient will regret the act and attempt preservation. We remember to have seen an instance of this in a man who had cut his throat during the delusion of inflammatory congestion of the brain. The delusion presented to his mind was, that of unfortunate beings torn to pieces by dogs in hell, and on seeing these dogs coming to drag him to a similar fate, his despair and anxiety to escape the supposed torture were so great that he seized his razor and cut his throat, but no sooner had the flow of blood been sufficient to relieve the brain than the delusion vanished, to give place to regret at what he had done, and efforts to restrain the hemorrhage. In melancholia suicide is often committed under the supposed solicitation of an internal voice. Esquirol mentions the case of a monomaniac, who heard a voice within him say "kill thyself, kill thyself," and he immediately obeyed the injunction. We recollect an old woman who cut her throat, and showed the most anxious wish, by tearing away the dressing, &c., to accomplish her fatal purpose. One night she was observed talking as if in conversation with a second person, and being questioned said, that there was a black man at the foot of her bed persuading her to cut her throat again.

"Instances of *mutual or associated suicides* are not rare, par-

ticularly in recent times. The self-homicides of Lucius Vetus, Sextia, and Pollutia, during the reign of Nero, and of Sardanapalus, may be noticed amongst the many instances recorded in ancient history. During the French revolution, and the wars consequent upon it, associated suicides were frequent. Nine conscripts who had concealed themselves, having been discovered, determined to destroy themselves rather than serve: they drowned themselves together. The most common causes of this mutual crime are, opposition on the parts of parents to the fulfilment of marriage engagements entered into by young persons, wants or disappointments in the married state, and family dishonour. The bodies of two young persons were found in the Seine, with a piece of paper attached to them, testifying to their ardent affection, and that they perished together that they might be eternally united. Occurrences of this kind are, however, not unfrequent in this and other civilized countries; and instances are not rare of lovers committing mutual suicide, even where there was no opposition to the consummation of their wishes. In this latter case, some cause of chagrin or disappointment has occurred, and maddened the mind already disordered by one dominant passion, the suicidal intention entertained by either being adopted by the other. From the accounts of several cases of mutual suicide attempted in recent times, there is every reason to suppose that the attempt was merely *simulated* by one of the persons who had agreed to commit this crime; and that it had been contrived entirely with the intention of getting rid of an object no longer one of endearment. This is more likely to be the case when a young woman has become pregnant by one of those drunken debased workmen who prey upon females in large or manufacturing towns. This and similar instances have appeared in the public prints. A man out of work and his paramour having agreed to commit mutual suicide, procured some laudanum (about four ounces), and divided it into two equal quantities. The man proposed that they should turn back to back whilst taking it, in order that they might not falter in the act; the female died soon after, but the man did not appear to be affected. From the evidence at the inquest, it did not appear that he had actually entertained an intention to destroy himself, or had taken any of the laudanum. Analogous cases have occurred, where drowning has been the mode of carrying the suicidal act into effect; one of the parties having escaped.

“ Want and other causes of distress, and even more petty grievances, may, in states of mind but little influenced by moral and religious principles, induce husband and wife to commit mutual suicide. In the present state of society, especially in Paris, where the passions are roused and excessively gratified before reason and judgment are informed—where sensibility is exhausted at an early age, by the excitement of sensations, in great variety, in rapid succession, and increasing intensity—where the thirst for pleasure is promoted by a loose and stimulating literature—and where the end of enjoyment is

generally shown, in the pages of the novelist and in the scenes of the dramatist, to be murder and suicide, instances of associated self-destruction, even among persons no way dependent upon each other, have not been rare. Young men, who have exhausted either the means or the power of enjoyment, or both, in the career of vicious indulgence, and unrestrained by principle and by fear, have followed the example held out to them by the popular writers of the day, and 'shuffled off this mortal coil' in the most dramatic forms they could devise. Two young men entered a *restaurant*, ordered an expensive dinner, with costly wines, without the intention or the means of paying for it, and soon afterwards committed suicide together. On a table in their room were found written papers, expressing aspirations after greatness without either labour or care, and contempt for those who could live by their own exertions, with sundry quotations from Victor Hugo and other exciting writers of the day. The whole was terminated by a request that their names and the manner of their deaths might be sent to the newspapers! Sensation is the object and end of living with many, in the present day; and when it can no longer be excited—at least to the pitch, or in the tone, capable of yielding enjoyment—life is relinquished in such a way as is most likely to excite the sensations of others.

"*Murder* is often committed first, and *suicide* afterwards, prompted by the same or different motives. *Jealousy* is one of the most frequent causes of this combination of crimes, which, however, may be prompted by a variety of circumstances; indeed, by all which occasion suicide or insanity. The following instances are fully detailed by Mr. Winslow:—M. De Pontalba, whose son was a most distinguished officer, and married to a most extravagant woman, saw with distress the ruin she was bringing upon him. In order to save the son the father shot the daughter-in-law, and afterwards himself.—A gentleman of London was married in the country to the object of his affections. He had drawn the charge from his pistols the previous night, but his servant had loaded them again the following morning without acquainting him. After the ceremony he took up one of the pistols, which he knew he had unloaded the night before, and playfully rallied the lady on her cruelty, saying, 'You shall die, you tyrant! you shall die with all those instruments of death about you—with that enchanting smile, those killing ringlets of your hair!'—'Fire!' said she, laughing. He pulled the trigger, and she was shot dead. He called up the servant, and, upon his entering, locked the door, and enquired if he had loaded the pistols? 'Yes,' was answered; on which his master shot him with the undischarged pistol. He wrote* to his wife's father, explaining the calamity, and then threw himself upon his sword.

* "The letter will show the state of mind produced by causing the death of a much-loved object, particularly as leading to suicide. This gentleman had written immediately upon the performance of the ceremony, and had concluded the note as follows:—'The bride gives her duty, and is as handsome as an angel. I am the

“Instances are not rare of a parent or parents, influenced either by want, or by homicidal monomania, killing their children, and then committing suicide. Although extreme wretchedness is sometimes the chief occasion of these occurrences, yet it is seldom the only occasion. More frequently some form of partial insanity is either the principal or concurring cause; some circumstance having occurred to excite the homicidal propensity. Dr. Gall mentions the case of a soldier, of whose wife an officer had become enamoured without succeeding in his wishes. The soldier appeared dejected and morose, but the following day appeared quite tranquil. A few days afterwards he and his wife attended the confessional and took the sacrament; they dined in good spirits, and went out to walk; he expressed his strong affection for her, and inquired if she had made a full confession to the priest. He then plunged a poniard in her breast. He repaired to his house, and seizing his children killed them with a hatchet. He afterwards went to the main-guard, and deliberately detailed the whole particulars, concluding with the words—‘Let the officer now make love to my wife, if he pleases!’ He then stabbed himself to the heart.”

With regard to the modes of quitting life selected by the suicide, he says:

“These, in many instances, have some reference to the occupation or profession of the suicide, Thus, military and naval men shoot themselves; chemists and medical men poison themselves, chiefly with prussic acid; barbers and hairdressers cut their throats; shoemakers stab themselves, &c. Fire-arms and sharp instruments, particularly pistols, razors, knives, and daggers, are most frequently employed by men. Drowning, hanging, poison and precipitation from windows or great heights, are the means of self-murder most commonly resorted to by women. In France, asphyxy, by the vapour of burning charcoal, is often selected by females, and even by males, particularly in cases of associated suicide. Hanging, drowning, and poison, are, however, the means most frequently resorted to by both sexes. The choice thus made does not always depend upon what may be supposed to cause the easiest or the most rapid death; but, probably, upon that mode which offers the greatest facility, or is the most readily carried into effect in moments of irritation, distraction, or depression. It is remarked, that a very large proportion of suicides,

happiest man breathing.’ This soon afterwards was written :—‘Two hours ago, I told you truly that I was the happiest man alive. Your daughter lies dead at my feet, killed by my own hand, through a mistake of my man’s charging my pistols unknown to me! I have murdered him for it. Such is my wedding-day. I will follow my wife to her grave; but before I throw myself upon my sword, I command my distraction, so far as to explain my story to you. I fear that my heart will not keep together till I have stabbed it. Poor good old man, remember that he who killed your daughter dies for it! In death, I give you thanks, and pray for you, though I dare not pray for myself. If it be possible, do not curse me. Farewell for ever!’

by drowning in London, are committed by persons residing in the vicinity of the river, and of the Regent's Canal."

In proportion with the increase of civilization has been that of insanity, the mind sharpened to the finest edge by the delicacies and refinements of civilization, recoils blunted and broken from contact with the flinty surface of misfortune.

Dr. Copland gives the following list of the most influential causes of suicidal insanity :

" The range given to the social passions ; the hazards and losses in mercantile speculations in the funds, and in joint-stock speculation, and companies, and the consequent ruin and debasement of families ; habits of dissipation, the indolence and ennui consequent upon wealth and sated enjoyment ; the importance attached to public opinion, and the instability of that opinion ; the violent shocks and collisions of opposing parties ; the inactivity to which military and naval persons are reduced during times of peace ; the enthusiasm of religious and philosophical sects ; the immorality of the literature and scenic representations of the age ; and the details of crime and of suicide, which constitute a principal part of the daily reading of all classes of the community."

We cannot give a detailed account of the pathology of suicide, but we may mention generally that of 1330 cases two-thirds presented pathological alterations in the cranium, cerebrum, its membranes or circulatory apparatus. This fact proving the large part the state of the brain plays in inducing suicide, is rendered additionally interesting by another, that these periods of the year, spring and summer, which Andral, in his *Clinique*, mentions as those in which apoplexy is most prevalent are also those in which the greater number of suicides take place.

We feel that we have given a very imperfect idea of the excellence of this paper, but we trust enough to lead the reader to its perusal. It is, independent of its professional merits, written with excellent taste, and, as the subject demands, with the high moral feeling of one convinced that the Everlasting has his canon fixed against self-slaughter.

A Memoir on the Life and Character of Phillip Syng Physick, M.D. By J. RANDOLPH, M.D., one of the Surgeons to the Pennsylvania Hospital. Philadelphia. 8vo. pp. 114.

PERHAPS no description of reading is more interesting, and to the young especially, more instructive than that of the well written lives of eminent men. Though the biography of a sur-

geon or physician can rarely be expected to present that mental excitement which the hair breadth escapes, and daring exploits of the naval or military hero abundantly afford ; yet the young professional reader cannot peruse without emotion, the early struggles, the labours and rewards of those great men, who have both enriched the science of their profession, and benefited mankind by their works.

Dr. Physick's reputation was so high, not only in his native city, but throughout the whole of America, and his name as a great surgeon so well known in Europe, that we think it will be neither uninteresting nor uninstrusive to lay before our readers, (which Dr. Randolph's excellent Memoir enables us to do,) those means by which he attained, and that conduct by which he so long held his exalted position.

Philip Syng Physick was born in Philadelphia, on the 7th July, 1768. His family were highly respectable, and independent in their circumstances, his father was an Englishman, and both his parents were remarkable for high mental endowments. Neither care nor expense was spared in his education, and at seventeen years of age he began his medical studies under Dr. Adam Kuhn, a pupil of Linnæus, a most distinguished and successful practitioner and professor of the theory and practice of medicine in the University of Pennsylvania. It does not appear to have been from his own wish that he selected surgery as his profession, on the contrary, though qualified by strong powers of mind, he seems to have been otherwise unsuited for a profession supposed to demand some of the sterner qualities of our nature, by a morbid degree of sensibility.

“ Dr. Physick was remarkable throughout life for possessing feelings of the most acute and susceptible nature. It may be truly said of him that he possessed a soul feelingly alive to the miseries and sufferings of others. I feel compelled to confess, that I do not think Dr. Physick himself could support pain with the same degree of fortitude and composure which we have sometimes met with in persons who suffered to an equal extent with himself; it is undeniable, however, that he was extremely unwilling to be the source of inflicting pain upon others. This tenderness of feeling, which adhered to him closely as long as he lived, as I shall have occasion to show during the progress of this memoir, existed also in full force in the days of his youth. He used frequently to declare at this period of his life, that he never could be a surgeon. Little was he aware, that he would live to afford in his own person, a complete illustration of the position, that the practice of medicine and surgery, so far from hardening and rendering callous the feelings, has a direct contrary tendency, and serves pre-eminently to soften and refine them. His example also went far to prove, in connexion with the result of our

whole experience upon this subject, that in order for a man to become a great and good surgeon, it is absolutely necessary for him to possess to the fullest extent, the best and kindest feelings of which human nature is susceptible.

“The following incident, which occurred to Dr. Physick, and which was in fact characteristic, may not be deemed uninteresting. Soon after he commenced the study of medicine, it was announced that an amputation would be performed upon a certain day, at the Pennsylvania Hospital. His preceptor, Professor Kuhn, wished him to witness this operation, but understanding perfectly well the peculiar temperament of his pupil, he gave it as his advice that his father should accompany him. His father did go with him, and fortunately too, inasmuch as his son became so sick during the operation that it was necessary to lead him from the amphitheatre before it was concluded.”

After studying with great dilligence for three years, dissatisfied with the further opportunities of improvement then offered by his native city, he went to Great Britain. In London by the influence of his father he was admitted into the best society, thus probably acquiring those gentlemanly habits and demeanour for which he was afterwards so remarkable ; but above all he attained the inestimable advantage of becoming the pupil of the celebrated John Hunter. Disregarding the allurements of pleasure or amusement, he devoted himself with unremitting attention to the means of improvement now presented. In a note book kept by him at this time, among many other interesting entries is the following :

“February, 1739.—Mr. Home performed an operation on a sheep which had the staggers, in the following manner. After making a crucial incision through the integuments of the cranium, he applied the trephine, and removed a portion of the bone from the upper and middle part of the cranium. When this was done, he introduced a pair of small forceps, with which he extracted a *tænia hydatigena*. The effect was, that the sheep, being set at liberty, stood on its legs, which before it could not do. This, however, was only a temporary amendment, as it died about twenty hours after the operation was performed.”

By Hunter's interest he was appointed House Surgeon to St. George's Hospital, a situation which of course afforded him the greatest opportunities of professional improvement, of becoming familiar with disease, and with all the practical treatment of fractures, bandaging and dressing, for neatness in applying which he was afterwards always distinguished. Besides high testimonies of the admirable manner in which he had discharged his duties from the proper authorities of the Hospi-

tal, he received a yet more gratifying testimony from John Hunter :

“ Mr. Hunter invited him to take up his residence with him, to become an inmate of his house, and to assist him in his professional business ; he also held out inducements to him to establish himself permanently in London, and to pursue the practice of his profession in that city.

Unwilling however to exile himself from his native land, he resisted this tempting offer. He parted from Hunter with extreme regret, his continued kindness to him had generated the most lively gratitude and affection, and he never ceased to regard him as the greatest man that ever adorned the medical profession.

Having stayed a year in Edinburgh, and obtained his medical degree, he quitted it for his native country in September, 1792, and commenced the practice of his profession in Philadelphia, at the age of twenty-four. Besides his extraordinary mental endowments and extensive knowledge

“ Nature also rendered her best aid for fitting him pre-eminently, by all external advantages, for the successful accomplishment of his objects. His personal appearance was commanding in the extreme. He was of a medium height ; his countenance was noble and expressive ; he had a large Roman nose ; his mouth was beautifully formed, the lips somewhat thin, and he had a high forehead, and a fine hazel eye, which was keen and penetrating. The expression of his countenance was grave and dignified, yet often inclined to melancholy, more especially when he was engaged in deep thought, or in performing an important and critical operation. Dr. Physick rarely indulged in excessive mirth ; he was, however, far from being insensible to playful humour, and on such occasions his countenance would be lighted up by a benign smile, which altered entirely the whole expression of his features. His manners and address were exceedingly dignified, yet polished and affable in the extreme ; and when he was engaged in attendance upon a critical case, or in a surgical operation, there was a degree of tenderness, and at the same time a confidence, in his manner, which could not fail to sooth the feelings and allay the fears of the most timid and sensitive.”

In spite of these advantages, he was undergoing the ordeal of the proverbially slow entrance of a young practitioner into practice, when the awful epidemic of the yellow fever broke out in Philadelphia, in the summer of 1793. He offered his services to the Board of Health, and was elected Physician to the Yellow Fever Hospital at Bush Hill. He discharged his duties with such intrepidity and efficiency as secured to him the gratitude and esteem of his fellow-citizens. He got the fever himself, and he thinks he never recovered the shock his constitu-

tion then received. His services at this period secured to him friends and connexions which were afterwards of the most lasting use.

In 1794, he was elected to the Pennsylvania Hospital, a circumstance which necessarily contributed materially to his professional success, and led to an extension of his business. This enabled him to add greatly to his stock of experience, and to perfect himself in the operative part of surgery.

“ Dr. Physick possessed pre-eminently all the qualifications requisite for a bold and successful operator. His sight was remarkably keen and good ; his nerves, when braced for an operation, were firm and immovable ; his judgment was clear and comprehensive, and his resolutions, once formed, were rarely swerved from. In addition to those he owed much to his thoughtful and contemplative cast of character, which induced him to deliberate and reflect intensely upon all the circumstances of his case, and to make elaborately beforehand every preparation which might become needful in the performance of his task.”

He made many improvements in the treatment of ulcers, particularly insisting, where the ulcer was in the lower extremity, on the elevation of the limb ; he did not neglect constitutional treatment. He also made many important improvements in the apparatus for fractures.

“ During Dr. Physick's attendance at the Pennsylvania Hospital, in the year 1796, a case occurred in which the patient, a young man, had laboured under a suppression of urine for forty-eight hours. The bladder was so much distended that it rose above the umbilicus, and the patient was suffering intense agony. Dr. Physick made repeated attempts to introduce catheters of different sizes into the bladder, in order to draw off the urine, but without success. He next took a bougie, and succeeded in introducing it into the bladder, but upon withdrawing the instrument, no urine followed. The idea then struck him that he might fasten the point of a bougie upon the extremity of an elastic catheter, so as to conduct the catheter into the bladder and allow the urine to flow through it. He immediately carried his plan into execution, and succeeded most happily in completely relieving his patient. Since then this method has been frequently resorted to with great success, in cases where, owing to enlargements of the prostate gland, strictures of the urethra, and other causes, the common catheter could not be passed into the bladder.

In his treatment generally of strictures, he was eminently successful, and the following extract will show that he anticipated Mr. Stafford in the invention of an instrument for piercing the stricture.

“ Among his other contributions, however, let us notice his invention of an instrument, in the year 1795, for the purpose of cutting

through a stricture which had refused to yield to the ordinary methods of treatment. This instrument consists in a lancet concealed in a canula, which is passed down to the stricture, and then the lancet is pushed forward so as to effect its division. After the stricture is cut through, a catheter or bougie should be introduced and worn for some time, in order to produce the necessary permanent dilatation. The success attending this method of treating strictures, which have resisted all other attempts at dilatation, has now become so completely familiar, as to entitle it to be considered one of the most important and useful operations in surgery. It should be stated also, that in some cases of complete retention of urine from stricture of the urethra, this method of dividing the stricture by means of the lancet has obviated the necessity of puncturing the bladder itself."

The year 1800 formed a most eventful one in the life of Dr. Physick. During this year he married Miss Emlin, a highly gifted and talented lady, of the Society of Friends. By this marriage he had two sons and two daughters, who are all now living. In this year also, at the request of a number of gentlemen, he first began a course of lectures on surgery.

"After preparing the lecture introductory to his course, he committed it to memory. Among the persons invited to be present at its delivery was his valued friend, Dr. Rush. The scene was a trying one to Dr. Physick. It was the first time he had ever publicly addressed an audience. I have been informed, however, that he acquitted himself extremely well. At the close of the lecture, Dr. Rush stepped up to him and gave him his hand, and congratulated him upon his success. He then said to him very emphatically, 'Doctor, that will do—that will do. You need not be apprehensive as to the result of your lecturing—I am sure you will succeed.' Dr. Physick never forgot Dr. Rush's kind manner to him on this occasion. He assured me that it exerted a considerable influence in strengthening and confirming his resolutions to persevere. It is needless for me to say that Dr. Rush's predictions respecting Dr. Physick's ultimate success in lecturing were fulfilled to the utmost. Five years subsequently to that period, the Professorship of Surgery was created in the University of Pennsylvania, and Dr. Physick was appointed to fill the chair.

"The year 1802 was signalized by Dr. Physick by his invention and execution of an operation, which not only forms one of the most brilliant achievements of modern surgery, but has also been productive of the most beneficial results to suffering humanity. On the 18th of December, 1802, he performed, in the Pennsylvania Hospital, his celebrated operation of passing a seton between the ends of an ununited fractured humerus, for the purpose of causing a deposition of callus, and thereby producing the consolidation of the broken bone. The patient was a seaman, who had had the misfortune to fracture his left arm, eighteen months previously, whilst at sea; and

in consequence of the bones not having united, the limb was rendered nearly useless. At the expiration of five months after the performance of the operation he was discharged from the hospital perfectly cured, his arm being as strong as it ever was. Dr. Physick published an account of this case in the *Medical Repository of New York*, vol. i. 1804; and it was republished entire in the *Medico-Chirurgical Transactions of London*, vol. v. 1819.

“It so happened that, in the year 1830, I was requested to visit a patient in Third-street, who was lying dangerously ill from an attack of remitting fever of a high grade. A few days after my first visit, in riding past his door in company with Dr. Physick, feeling very uneasy about the condition of my patient, I requested the Doctor to step into the house and see him with me, and give me the benefit of his advice. He complied with my request, and upon entering the sick man's chamber he immediately recognized him as the individual upon whom he had performed the operation which I have just described, twenty-eight years previously. Upon questioning the patient he informed us that the arm which had been broken was quite as strong as his other arm, and that he had never sustained any inconvenience from the operation. Eventually the man died; and having obtained permission to make a *post mortem* examination, I procured his humerus, and still have it in my possession, regarding it as one of the most interesting and valuable pathological specimens extant. At the place of fracture, the two ends of the bone are perfectly consolidated by a considerable mass of osseous matter, in the centre of which there is a hole, showing the place through which the seton passed.”

His practice was now most laborious and extensive, and scarcely a day passed without the performance of an operation. Dr. Randolph regrets, with much reason, the antipathy of Dr. Physick to publishing, which prevented the results of such vast observation and experience being laid before the profession. Posthumous fame never seems to have been thought of by him. He did, however, publish a few papers at different times; the treatment recommended in one of these is perfectly new to us.

“In this paper Dr. Physick gives an account of two cases of mortification which came under his own notice, in which he applied blisters to the mortified parts with the most beneficial effects. He also publishes two letters, one addressed to him by his friend, Dr. Benjamin Rush, and the other by Dr. Church; each of whom describes a case of mortification in which he employed blisters, upon Dr. Physick's recommendation, with perfect success.

“It is scarcely necessary for me to add, that since that period, blisters have been employed in a great variety of cases, for the purpose of arresting the progress of gangrene and mortification, with the most successful results. As a local remedy I believe a blister is en-

titled to a decided preference over all others. In order for it to be effectual, it should be large enough to cover the sound parts adjacent to the disease.

We only wish Dr. Randolph had informed us in what kind of mortification the blister is recommendable.

In 1805, he was elected to the Chair of Surgery, in the Pennsylvania Hospital.

Like every other man who has arrived at well-merited professional eminence, his life was one of great toil.

“ Like every other great man his habits were most laborious. It is almost impossible to conceive the great amount of labour which he was in the habit of performing daily, during this period of his life. He has frequently told me that it was his custom, throughout the winter months, to rise at four o'clock in the morning. This hour being too early to disturb a servant, he was obliged to arrange his own fire. He would then sit down to his desk and prepare his lecture for the day; after which he would dress himself, and then take his breakfast, and leave his house between eight and nine o'clock, in order to attend to a most extensive and laborious practice. In addition to all this, he discharged his duties as Surgeon to the Pennsylvania Hospital, and to the Alms' House Infirmary. He used often to remark, that in order to obtain entire success as a practitioner of medicine, it was necessary to work hard. He told me that in London this idea was conveyed by the emphatic expression ‘ Doctor or Mr. ——— is working his way into business.’ It will be conceded that no portion of his success came to him gratuitously; on the contrary, he made laborious exertions to obtain it.

“ Dr. Physick's manner as a public lecturer was grave, dignified, and impressive to an extraordinary degree. His style was clear and comprehensive, simple yet chaste. He was uniformly careful never to say too much. His choice of language was remarkably good, and he possessed the happy faculty of communicating knowledge agreeably and well in as great perfection as any other man I have ever heard lecture. Perhaps one great reason for this was, that he never undertook to instruct others upon subjects which he did not clearly comprehend himself. He attempted no display of oratory; neither did he permit his reason and imagination to run wild in the regions of theory and fancy. For these attributes he found much better employment; he kept them constantly occupied in studying the realities of life, and in reflecting upon the best methods of promoting the welfare of his fellow-creatures. His lectures were all carefully prepared and written out. He did not at all approve of extemporaneous lecturing; as he thought that in lecturing upon scientific subjects, and more especially such as involved the lives and happiness of our fellow-beings, no man had a right to place so much confidence in the strength of his memory as is implied in that practice.

His character for stern integrity and strict veracity was so well known and established, that whenever he asserted facts to be true, they were implicitly believed.

“As a letter-writer he was exceedingly exemplary and peculiar. I regret very much that I have not the privilege of inserting a few of his letters in this memoir, in order to let them speak for themselves. His letters in general were remarkably brief and pithy. Having said all that he considered necessary for the elucidation of his subject, he invariably stopped. I have frequently known him to reply to a letter of three or four pages closely written, in about as many lines. He was excessively annoyed at receiving, and being obliged to read letters of an unmeaning and unnecessary length. The same thing took place with respect to books. I have often heard him complain, that it was very hard he was obliged to read through a volume of two or three hundred pages, in order to get at ideas which might have been embodied in ten or twenty.

In 1809, he first invented and performed his operation from artificial anus. Dupuytren, some years after performed a similar one, and arrogated to himself the discovery. This claim, however, he afterwards resigned, and Roux assigned the priority of invention to Dr. Physick. In 1814, he got typhus fever, so severely that his life was despaired of. After recovery he never had the same health as before, his digestion became impaired, and he was subject to attacks of catarrh; to meet this last, among other means, he employed the strictest antiphlogistic treatment.

“The small amount of food which he would sometimes permit himself to partake, is almost inconceivable; and this for many days together. I frequently expressed to him my regrets respecting the meagre diet he was using; and upon one occasion I dissented roundly from the propriety of such a course of dieting. He replied, that he regretted it very much himself, and that he wished he could indulge in more generous living; but that he had accustomed his stomach for so long a time to abstinence from rich food, that it was impossible now to make any change.

“About the period to which we are alluding he began to experience certain unpleasant symptoms, indicative of a diseased condition of the heart, and which eventually terminated in organic affection of that organ, and doubtless laid the foundation for the hydropic complaint of which he died.

“Among the complicated forms of disease to which he was subjected, must also be enumerated nephritic disorder, with calculous concretions in the kidneys. It is impossible for language to describe the pain and agony which he frequently endured from the passing of the small calculi through the ureters into his bladder. Upon one occasion, about ten years previous to his death, I knew him to be for

near two hours without any pulse perceptible at the wrist, in consequence of intense suffering, caused by the lodgment of a small calculus in the ureter. It remained fixed in this situation for some days, and grew to the size of a small pea; it finally passed into the bladder, and was discharged a few minutes subsequently through the urethra. Had it remained in the bladder but for a short period, it might have retained a size too great to admit of its discharge through the canal; and he would then have had, in addition to his other evils, that formidable affection, the stone."

Among other topics which employed his active mind, was that of the substance best adopted for the formation of ligatures.

"His views upon this subject will be fully explained by the following quotation. 'Several years ago, recollecting how completely leather straps spread with adhesive plaster, and applied over wounds for the purpose of keeping their sides in contact, were dissolved by the fluids discharged from the wound, it appeared to me that ligatures might be made of leather, or of some other animal substance, with which the sides of a blood-vessel could be compressed for a sufficient time to prevent hemorrhage; that such ligatures would be dissolved after a few days, and would be evacuated with the discharge from the cavity of the wound.'"

It was at this period, 1819, that his fame and business were at their height, not only in his own city, but persons came from all parts of the union, and those who were unable to come corresponded with him. With such an increase to his labours, and with an impaired state of health he felt the right discharge of his hospital duties to be incompatible. He therefore resigned his situation as Surgeon to the Pennsylvania Hospital, to which he had been attached twenty-two years. He had previously given up his other public appointments.

In this year he lost his nephew, Dr. Dorsey, a gentleman of the most engaging manners, and of great talent, and to whom he was fondly attached. This bereavement threw him into the greatest affliction, and overshadowed the remainder of his existence with the deepest gloom.

But to return to Dr. Physick's professional opinions. For the removal of enlarged tonsils; at first he used a ligature of silver wire, applied by a double canular. The ligature was removed after twenty-four hours, shortly after which the included part separated. He afterwards, however, gave the preference to excision.

We are happy to be able to add the weight of his opinion and experience in favour of the use of the ligature in internal hemorrhoids. Surgeons everywhere are beginning to see the advantage of this method over the dangerous operation of ex-

cision. He operated as he had formerly done on the tonsils with the silver wire and double canular, leaving the ligature round the pile only twenty-four hours.

Dr. Randolph mentions the opinion of the operation of applying the ligature as a very painful one. The truth, we believe is, that those tumours which are within the anus and covered only by mucous membrane, are endowed with but little sensibility, and give no pain when the ligature is tightened. Whereas those into the formation of which the skin partially enters are keenly sensitive, and we have seen patients for several hours after the application of the ligature, suffer so acutely as to demand the use of soothing local applications and opiates.

He published a paper in favor of the use of caustic potash, in the treatment of carbuncle. The application of the caustic should not be made in the first stage, when all irritating treatment appears to be injurious, by increasing the inflammation then existing ; but in the second stage when the inflammation has subsided, and when an effort is making to throw off the dead cellular tissue through an opening in the skin, a stage which is pointed out by the appearance of pimples and small orifices. The application of the caustic so as completely to destroy the skin, is most beneficial. The pain ceases immediately, on the cessation of the pain of the caustic, and the disease is shortened considerably.

“Not the least among the improvements effected by Dr. Physick in the methods of treating diseases, may be considered his management of affections of the joints ; and more especially that condition of the hip joint, known by the name of ‘*morbus coxarius*, or hip disease.’

“I may mention generally, that his practice consisted in the application of a carved splint, which would keep the limb strictly at rest, and prevent the least possible motion of the joint ; and also in the prosecution of a course of active and long continued purging.

“In the *American Journal of the Medical Sciences*, No. XIV. February, 1831, I published a detailed account of Dr. Physick’s method of treating *morbus coxarius*, accompanied with a plate, exhibiting the application of the carved splint. The superiority of this method of treatment is now so completely established in this country as to lead to its adoption by the profession generally.

“In October, 1831, Dr. Physick performed the operation of lithotomy on Chief Justice Marshall. This case was attended with singular interest, in consequence of the exalted position of the patient, his advanced age, and the circumstance of there being upward of one thousand calculi taken from his bladder. It is well known that for several years previous to this period, Dr. Physick had declined performing extensive surgical operations. He felt somewhat reluctant to operate upon Chief Justice Marshall, and

offered to place the case in my hands. Taking all the circumstances into consideration, and knowing well that this would be the last time he would ever perform a similar operation, I felt desirous that he should finish with so distinguished an individual, and accordingly urged him to do it himself. Upon the day appointed, the Doctor performed the operation with his usual skill and dexterity. I do not think I ever saw him display greater neatness than on that occasion. The result of that operation was complete success.

“ I should state, that an early period after Judge Marshall’s case the operation of lithotripsy was introduced into this country. Dr. Physick became convinced of the extraordinary advantages which it possessed over that of lithotomy, and yielded to it the full support of his sanction and approbation.

“ Among other contributions made by Dr. Physick to the department of surgery, I should mention that we are indebted to him for making us acquainted with the existence of preternatural pouches, or sacs, situated at the lower extremity of the rectum, just above the verge of the anus. This form of disease, which is one of not unfrequent occurrence, is in many instances productive of the most severe and distressing symptoms; so much so, that we have known patients labouring under it declare that their lives were scarcely supportable. The complaint is rendered more perplexing also from the almost uniform absence of all visible or external signs by which it may be designated. It is only by a peculiar mode of examination that its existence can be detected.”

The following method of treating enlargement of the prostate is equally novel and ingenious. It was tried on a gentleman seventy years old, in 1830.

“ The end of a small flexible catheter was introduced nearly to the bottom of a very thin sac or pouch, three inches long, and an inch and a half in diameter at the mouth. The edges of the sac, which was prepared from the intestine of a sheep, were secured to the catheter by a fine silk thread, wrapped around it with great care; and the material being as fine as the thinnest blotting paper, adapted itself, when oiled, so closely to the instrument, that the bulk of the whole was less than that of a large sized bougie.

“ After its introduction into the bladder, the membrane was injected with tepid water, and the mouth of the catheter being stopped with a peg, it was gently, but with some firmness, retracted. The consequent pressure at the seat of disease, gentle and uniform, and from the nature of the material used, as little irritating as possible, had the happiest effect in repressing the enlarged lobe of the gland; and afforded for many months great relief by facilitating the discharge of the urine. Although the patient took a severe cold immediately after the operation, he did not suffer more than he had previously; and, on recovering from its temporary influence, he experienced a relief long unknown. The introduction of the instrument was again practised, after an interval of some months, with great advantage.

“ Much nicety is requisite in securing the edges around the catheter, so that there may be no roughness to cause irritation during its retraction. It was also deemed proper to wind the end of the thread loosely round the catheter, and secure it to the stopper. The material employed was prepared and may be procured in France.

“ Dr. Physick informed me that he had been equally successful in relieving another case by means of the same contrivance.”

He had always been very successful in his operation on the eyes. The operation for cataract which he preferred, was that of extraction ; the first case in his note book was one of this kind, and by a curious coincidence, the last he ever performed was the same, peculiar circumstances obliging him.

“ The date at which he performed this operation was the 13th of August, 1837. I was present on the occasion, and watched him with the most intense anxiety. He was quite collected and firm, and his hand was steady ; notwithstanding at the time he was labouring under great mental and physical suffering. Whilst witnessing this last expiring effort in the cause of afflicted humanity, I felt a melancholy conviction that this would be the final act of his professional life, and that I should never again behold him engaged in a surgical operation.”

The father of American Surgery expired without a struggle, on the morning of the 15th December, 1837, aged 69 ; he died of the same disease as his great contemporary Sir Astley Cooper. Dr. Physick was by many considered to be of a stern and unfeeling disposition, an opinion which arose from his habits of seclusion, and the little intercourse which he held with his fellow-citizens, except on professional matters. Dr. Randolph, however, assures us that the general opinion was unfounded, that he was of an extremely feeling nature, and that his retired habits arose from his entire self-abandonment to his professional duties.

“ At an early stage of his professional career he performed a few experiments upon living animals, with the view of determining some physiological points. This formed a lasting subject of regret to him as long as he lived ; and he could not divest his mind of the idea that he had been guilty of a useless as well as a wicked act of cruelty,

“ In his intercourse with his professional brethren Dr. Physick's conduct was regulated by the strictest principles of honour and integrity. Whenever he was called in consultation with other physicians, without inquiring how exalted or how humble their positions might be, he was scrupulously careful to avoid saying or doing any thing which could wound their feelings, or prejudice them in the least in the estimation of their patients. He invariably stated

his own opinions in a frank and manly manner, and was ever willing to pay due deference to the opinions of others. Upon all occasions he was happy and ready to confer upon his fellow-practitioners the benefit of his advice and experience, whether the information desired had special relation to themselves or to those under their charge. He was far removed above the meanness of interfering with the patients of others; and whenever he had it in his power to render a service to a younger member of the profession, by a word of encouragement or commendation, it was cheerfully bestowed."

In closing these remarks, we may observe, that we have extended our extracts of this admirable memoir, because, as it is exclusively an American publication, it would be unlikely to fall into our readers' hands; we thought, too, that every particular of the life of one of the profession, who united the character of a great and good man, could not fail to be read with interest. To ourselves we confess few things offer more attraction than the lives of those medical men who have braved the pestilence with intrepidity, benefited their fellow-man by their labours, and wrested from the unwilling grasp of death some of his trophies, to us at least, the actions of such men "smell sweet and blossom in the dust."

To Dr. Randolph we beg to offer our meed of praise for having produced a model of professional biography, evincing at once good sense, good taste, and as the son-in-law, and intimate friend and companion of Dr. Physick, good feeling. It is every way worthy of the high position Dr. Randolph holds among the surgeons of America.

SCIENTIFIC INTELLIGENCE.

Successful Operation upon a Gentleman born blind.—Doctor Franz has published in the Philosophical Transactions, Part I., 1841, a very interesting memoir of the results of a successful operation for cataract, in a gentleman born blind, in the eighteenth year of his age, and who also had congenital strabismus. Towards the end of the second year the operation of keratonyxis had been performed on the right eye, upon which a severe iritis had ensued, terminating in atrophy of the eye-ball. Within the next four years two similar operations had been performed on the left eye, which did not, indeed, destroy the opaque, but, at the same time, did not remove the opacity in the pupil. Light was, to a certain degree, perceptible after this operation. When he presented himself to Dr. Franz, for the purpose of consulting him with regard to the congenital double strabismus, and, at the same time, to hear his opinion on the more severe ophthalmic affection, the case had been considered by the patient himself and others as hopeless. The right eye was found to be so, but Dr. Franz removed the opaque capsule, and a portion of opaque lens from the left, and sight gradually returned. Several ingenious experiments were made on the forms of objects, the irregularities on their surface, and their distances ; and also the appreciation and effect of the different colours. We regret we have no room for these, but think the following facts will be read with interest :

“ When the patient first acquired the faculty of sight, all objects appeared to him so near that he was sometimes afraid of coming in contact with them, though they were in reality at a great distance from him. He saw everything much larger than he had supposed from the idea obtained by his sense of touch. Moving, and especially living objects, such as men, horses, &c., appeared to him very large. If he wished to form an estimate of the distance of objects from his own person, or of two objects from each other, without moving from his place, he examined the objects from different points of view by turning his head to the right and to the left. Of perspective in pictures he had, of course, no idea ; he could distinguish the individual objects in a painting, but could not understand the meaning of the whole picture ; it appeared to him unnatural, for instance, that the figure of a man represented in the front of the picture should be larger than a house or a mountain in the back-

ground. All objects appeared to him perfectly flat ; thus, although he very well knew by his touch that the nose was prominent, and the eyes sunk deeper in the head, he saw the human face only as a plane. Though he possessed an excellent memory, this faculty was at first quite deficient as regarded visible objects ; he was not able, for example, to recognize visitors, unless he heard them speak, till he had seen them very frequently. Even when he had seen an object repeatedly, he could form no idea of its visible qualities in his imagination, without having the real object before him. Heretofore, when he dreamed of any persons, of his parents, for instance, he felt them and heard their voices, but never saw them ; but now, after having seen them frequently, he saw them also in his dreams. The human face pleased him more than any other object presented to his view ; the eyes he thought most beautiful, especially when in motion ; the nose disagreeable, on account of its form and great prominence ; the movement of the lower jaw, in eating, he considered very ugly. Although the newly-acquired sense afforded him many pleasures, the great number of strange and extraordinary sights was often disagreeable and wearisome to him ; he said that he saw too much novelty which he could not comprehend. And even though he could see both near and remote objects very well, he would, nevertheless, continually have recourse to the use of the sense of touch.

“ On the 21st of September I operated, in the presence of several medical gentlemen, in one sitting, on both eyes for the congenital strabismus. The right eye, which had been amaurotic, gained by this operation the power of perceiving light, so that when the left eye is closed, the patient can now distinguish light and shade on the hand being moved before this eye. The sight of the left eye, likewise, was considerably improved in acuteness and clearness, both as regarded near and distant objects, but especially the latter. Objects now, however, appeared in a different situation to that which they really held ; when, for instance, he directed his eye to an object situated immediately before him, he saw it more to his right, and, if he attempted to grasp it, he moved his hand in this wrong direction.* For this reason, in walking across a room he always took a direction to the right, and, consequently, often came, unawares, in contact with articles of furniture, &c. This appearance of objects in false positions lasted for two months, after which time he was also capable of walking forwards in a straight direction. The right atrophied eye, which before the operation was deeply sunk in the orbit, is now more prominent, and appears, therefore, fuller and larger, so that the difference of the two eyes is less perceptible ; he has, consequently, gained considerably in personal appearance. On one occasion, when I was honoured with a visit from Mr. Lawrence, Dr. Watson, Dr.

* This phenomenon I have observed in all eyes operated upon for strabismus of a great degree and long standing, when the other was closed. I have mentioned it in the *Medical Gazette* for June, 1840, vol. xxvi. p. 450, where I have also given an explanation of the physiological cause.

Kerrison, and several other medical gentlemen at my residence, I introduced him to them for examination.

“ In the middle of November he was able, without spectacles, to read the names over the windows of the shops in the streets, and to tell the time to the minute by St. Paul's clock. Walking alone in the crowded streets, especially in the city, he found very tedious. He said, seeing so many different things, and the quick movements of the multitude of people, carriages, &c., confused his sight to such a degree, that at last he could see nothing ; that the sensation produced by the object last seen had not yet disappeared from the retina, when the next object made its impression thereon, by which means confusion of ideas, great anxiety, and even vertigo were occasioned, from which he could only free himself by closing his eyes for a few moments.

“ In the middle of December an experiment was again made with spectacles. A lens of seven inches focus was now of the same service as one of $5\frac{1}{4}$ inches had been two months before. After the operation for the strabismus he was accustomed, in speaking with any person to turn his eyes away from the face, as otherwise he said he felt disturbed by the looks of the person ; he had now at length learned to look at the eyes of those with whom he conversed. The old habit of using the sense of touch to examine objects he had not yet entirely lost.”

Oxide of Silver.—The efficacy of the nitrate of silver in epilepsy has been long fully established. Dr. Hudson, of Navan, in a paper in this Journal, demonstrated its utility in numerous derangements of the digestive and uterine systems ; but, in spite of its admitted value, its use has certainly been, comparatively speaking, rarely resorted to, on account of its well known effect of discolouring the skin, an objection, undoubtedly, of the most formidable kind. Mr. C. H. B. Lane, in the July Number (1840) of the Med. Chirurgical Review, and more lately in the Lancet, (February 6, 1841,) has offered to the profession, as a pharmaceutical preparation of similar efficacy, but without the objection we have mentioned, the oxide of silver. He says :

“ The consideration of the relationship of the bichloride and oxide of mercury first drew my attention to the analogy of the nitrate and oxide of silver. There was abundant evidence of the efficaciousness of the nitrate of silver as an internal remedy ; an efficaciousness independent of causticity, which, indeed, rendered it an uncertain and dangerous remedy. Looking at the analogy in question, it seemed probable that the oxide would prove a mild and manageable preparation of silver, bearing the same relation to the nitrate that the oxide of mercury does to the bichloride. The irritation of causticity must often interfere with this intrinsic action of silver, and this being avoided by the substitution of the oxide, is, in itself, a considerable advantage, as it often precludes the remedy being used as freely as

is desirable. In cases where a lengthened use of the nitrate of silver is required—in epilepsy, for example—cutaneous discolouration has always been a matter of dread. Now, by the substitution of the oxide, this great objection will, we expect, be obviated; and with this view, the nitrate of silver, on being taken into the stomach, is converted into a chloride by the free hydrochloric acid of the gastric juice; this is taken up into the circulation, and when conveyed to the cutaneous surface is converted into an oxide by the action of light, and the strong affinity of albumen. This oxide cannot, apparently, permeate the capillaries, but becomes indelibly fixed, occasioning extreme disfigurement; but if the chemical process I have described be anticipated, and the silver is primarily introduced into the stomach as an oxide, its transmission to the skin would probably be prevented; for since the cutaneous capillaries are not permeable to its egress, when once deposited in the skin, as is the bile in jaundice, neither should we expect them to be permeable to its ingress. Of this view I have hitherto found no reason to doubt the correctness.”

Mr. Lane gives many cases illustrative of its efficacy in gastrodynia, pyrosis, diarrhœa, diabetes, dysmenorrhœa, and, strange enough, in the contrary state of menorrhagia; it was very useful, also, in leucorrhœa, exerting, as Mr. Lane thinks, and as Dr. Hudson proved, of the nitrate of silver, considerable power over this disease. Mr. Lane says—“The most obvious criterion of the goodness of the preparation is the colour, which should be an olive brown, and not, as I have frequently seen it, nearly approaching to a black. The light and air should always be carefully excluded.” He begins with doses of half a grain, and does not exceed six grains in the course of the day. It sometimes salivates.

Change in the Temperature of Climates.—We certainly perceive, without reverting to proofs which geology might supply, that in the progress of ages and of centuries the temperatures of other climates and of our own have undergone considerable change, as is evidenced by the formerly frozen state of the Mediterranean (in 775,) along its shores to the distance of fifty leagues, according to Glycus; in the Adriatic having been *commonly* frozen in the time of the Romans; in the constantly frozen state of the Rhine and the Danube, and other rivers of Gaul and Germany, during the winter, making it necessary to cover the ice with straw, to render the passage over them secure, according to Diodorus Siculus;* in the freezing of the Euxine, according to Ovid; in the breaking the ice of the Tiber in order to obtain water for the celebration of superstitious rites, as alluded to by Juvenal; in the instructions for protecting the cattle from the inclemencies of the Italian winter, as given by Virgil; in

* During the most severe winter that has occurred during the last century, (1795,) there was no river of any consequence frozen over, even in the northern parts of France.

the earlier period of our own former harvests, and in the unclothed state of our early inhabitants, as recorded by Cæsar ; in the growth of large luxuriant wood on our highest hills, in situations where, from the degree of cold which at present prevails they could not grow, as commented upon by Kirwan ; in the larger growth of our black cattle as recorded by Robertson ; and in numerous other examples furnished by the animal, vegetable, and mineral kingdoms of this and other countries.—*Dr. Chowne's Oration before the Medical Society.*

Climate of Paris.—The principal advantages which Paris has over London consists in the greater purity, clearness, and dryness of the atmosphere, its freedom from smoke and fog, and in the weather being less variable from day to day, as the summers are hotter, and the winters equally cold, if not colder. The average quantity of rain throughout the year, Mr. Lee conceives to be as great in Paris as in London. It would not, therefore, be advisable to select Paris as a winter residence for persons labouring under pulmonary complaints, (except perhaps some cases of asthma and sympathetic bronchial affection), or rheumatism. Paris agrees very well with many dyspeptic invalids, to whom the light cookery of the French *cuisine* is better suited than the more substantial fare usually met with in Britain, which requires greater powers of digestion, always provided the invalid abstains from ragouts, rich sauces, or highly-seasoned dishes, and from indigestible vegetables, as truffles or mushrooms. The valetudinarian who labours under depression of spirits, combined with disordered digestion, would likewise frequently find himself better after a few months' sojourn in Paris, which offers more resources for mental relaxation and amusement than any other city, not excepting London. Baths are also more general, which is a great advantage to invalids.

Among the most prevalent diseases of Paris may be enumerated inflammations of the respiratory organs, (especially in the winter and spring,) consumption, typhoid fevers, intermittents, rheumatism, chronic inflammations of the stomach and bowels, various forms of dyspepsia and scrofula. Apoplexy, paralysis, and nervous diseases in general, appear much less frequent than in England ; where, also, indigestion is more common, especially among the commercial and trading part of the population, and those whose avocations are of a sedentary nature, as clerks, and others who have much writing or head-work.—*Lee's Memoranda on France, Italy, Germany, &c.*

Death of Homœopathy in its Native Land.—At the time of my former visit I was anxious to see the homœopathic hospital, of which I had previously heard, Leipsic being the head-quarters of this doctrine. I expected to have found forty or fifty beds filled with patients ; but was rather surprised to find that the building (which is a small house in the suburbs) only contained eight, and even of these all but two or three were unoccupied. At my last visit to Leipsic I

understood that matters were going on badly with homœopathy, which, indeed, is now comparatively little heard of in Germany and France, and only required to be understood by the public for its absurdity to be apparent, though there will always be credulous individuals, who are to be caught by any novelty, when presented under a specious appearance, and backed by an unintelligible name. During its whole progress it never was sanctioned by any individual of eminence in the profession, and was principally taken up as a means of acquiring wealth or a livelihood by persons who had never been previously heard of, or who were known as having failed to acquire practice by the honourable exercise of their profession; by whom every means were taken to puff it into notice, and to keep public attention directed to it; such as repeated histories of cures, the establishment of dispensaries, of which, I believe, the only one that remains is the above-mentioned at Leipsic, even if it be still in existence, for a few months before my arrival the house physician having become convinced, during a residence of some time in the dispensary, of the nullity and danger of homœopathy, gave up his appointment, and published an exposition of the system pursued, with an account of cases, which clearly shows—what had long been evident to the bulk of the profession and the public,—that the so-called cures were recoveries from ordinary ailments by the efforts of nature, which were frequently a long time under treatment, whereas, by a proper medication and attention at the outset, they might probably have been removed in a few days, and that many of the more serious cases got worse instead of better, for the want of active treatment. It must not be supposed that the homœopathists always adhere to the principles of the doctrine. It has not unfrequently happened that persons who attributed their recovery to homœopathy were treated allopathically without their being aware of it. In fact, one practitioner in Leipsic, a professed homœopathist, candidly acknowledged that he pursued both plans of treatment, and was accustomed to ask his patients by which method they would be treated, as both were equally good.”—*Lee's Memoranda on France, Italy, and Germany, &c.*

Spontaneous Combustion of the Human Body.—The following conclusions are drawn by M. Jacobs from the reports of twenty-eight cases related by different authors.

1. Spontaneous combustion occurs only in human beings, and never in the lower animals: and among the former only in the living, and never in the dead body.

2. The majority of cases occurred in persons advanced in years; the youngest was twenty-nine years old, and there were other two fifty years old; all the rest were above the latter age.

3. By far the greater number of victims were women; of the twenty-eight cases, two only occurred in men.

4. In one case the catastrophe was preceded by a state of jaundice; and in another by the existence of an unhealthy ulcer on the head.

5. All the persons were alone at the time of the accident.
6. They had all led an inactive life.
7. They were all very fat and corpulent, with the exception of three of the women, who were thin, and of a dry habit.
8. The majority, but not all, had been addicted to drinking spirituous liquors.
9. In most of the cases there had been a candle, or fire, or some burning body close to the spot where the accident occurred.
10. Spontaneous combustion usually proceeds with great rapidity, as in from one to six or seven hours.
11. The flame proceeding from the body was not readily extinguished with water; it was very lambent and moveable, and destroyed only such articles as were quite close to, or in immediate contact with, the burning body.
12. The room, in which the combustion had taken place, was, in most of the instances, filled with a dense smoke, and the walls were covered with a carbonaceous substance; the floor, the bones, and the ashes were coated with an unctuous and highly-fetid matter.
13. The trunk of the body was generally quite destroyed, the remains being only some parts of the head and of the extremities.
14. All the cases of this singular occurrence, with the exception of two, have taken place when the weather was cold, and usually during winter, and in northern regions.—*Casper's Wochenschrift*. (*Med.-Chir. Rev.*, Oct., 1841.)

M. Raciborski on the Physiology of Menstruation.—Our readers will remember that in our recent review of Gendrin's *Traité Philosophique*, we drew their attention to this curious, and hitherto ill-understood, subject of physiological inquiry. From the researches of this gentleman, and from those of M. Negrier, as well as of Dr. Robert Lee, it was suggested that there is an actual rupture of one of the ovarian vesicles at each period of menstruation, and that the sanguineous discharge from the uterus was the result of this lesion. M. Raciborski questions the accuracy of this statement. While he admits that the primary movement in each act of menstruation is a congestion of the vessels of the ovaries, he denies that any rupture of their surface necessarily takes place at the same time.

“Having examined,” says he, “in a great number of cases, the ovaries of women who had borne children, we feel assured that, as a general rule, the number of the cicatrices on the surface of the ovaries is always proportionate to the frequency of actual impregnation, whether it has been a genuine or only a false conception.”

Some of the subsequent statements of M. Raciborski himself seem, however, to be at variance with this assertion, and partially to confirm the idea of frequent, if not of invariable, rupture during menstruation. Having quoted the opinion of M. Negrier, which is expressed in the following words: “An afflux of transparent fluid takes place into the cavity of one of the superficial vesicles of the ovary;

this fluid, by its accumulation, depresses the yellow matter, distends and attenuates this last (the vesicle?) at the point which presents the least resistance; the ovarian envelopes are at length raised up, distended and ruptured, with the vesicle:" our author thus comments upon it.

According to the distinguished professor of Angers, there must take place once a month, in the female constitution, a phenomenon analogous to what we observe to occur in many birds. Women, like hens, must have the power of detaching ova from their ovaries without any previous fecundation. But, before we can admit so startling a proposition, we require to have more conclusive data than those hitherto made public. As to the statement that cicatrices with red edges, or small pouches filled with blood, have been found in the ovaries of women who had menstruated shortly before death, we may observe that on many occasions we have observed similar alterations in the bodies of women in whom the catamenia had been suppressed for several months, as is generally the case, for example, in those who die of phthisis.

M. Raciborski sums up the conclusions to which he has come, after a very elaborate inquiry, in the following propositions:

1. That menstruation is a consequence of the accomplishment of the development of the ovaries.

2. That it is the direct result of the means employed by nature to place the ends of the Fallopian tubes and the ovaries in the relations necessary to fecundation and the passage of the fecundated ova.

3. That the sanguineous congestion, which is indispensable for obtaining those conditions in the human being, appears sufficient in itself to explain the occurrence of the hæmorrhage which constitute menstruation—without having recourse to supposing that there is any necessary solution of continuity.

4. That the vertical position, favoring still more the effects of sanguineous congestion on the generative organs, may be one of the principal reasons of the abundance of the menstrual flux in women, and in some species of simiæ.

5. That, for want of having precise information as to the nature and theory of menstruation, it has been hitherto impossible to establish a rational treatment of the various disorders induced by irregularities of this function.

6. That it is not yet sufficiently proved that the ovula arrive successively to maturity at each menstrual epoch, or that the most mature ovum then approaches nearest the surface of the ovarium, there to become ruptured and give exit to a germ.—*L'Experience. (Med.-Chir. Rev., Oct., 1841.)*

Conclusions of M. Cruveilhier with regard to the Sounds of the Heart.—It seems, from some experiments which M. Cruveilhier made, that the two sounds of the heart arise at the root of the aorta and pulmonary artery, and depend on the motions of the sigmoid

valves ; that the first sound which corresponds to contraction of the ventricles depends on the repression of the sigmoid valves ; that the second sound, accompanying the dilatation of the ventricles, is caused by the spreading out or expansion of the same valves by the retrograde column of blood.—*Med. Chirurg. Rev.*, Oct., 1841.

Foreign Bodies in the Articulations extracted by a new Process.—M. G. Goyraud, Surgeon-Major of the Hospital of Aix, instigated by the success attending the operations by subcutaneous incisions, was led to employ them for the extraction of some foreign bodies from the knee joint ; the case is as follows :

J. B. A., ætat. 24, came to the Hospital of Aix, 14th Sept. ; he had in the left knee joint a foreign body, from which he suffered great pain with impaired motion. This concretion, nearly as large as an almond, was loose in the synovial capsule. The first time that we examined the patient, the foreign body was at the outside of the articulation ; we pushed it above the patella, then on the inside of this bone, then finally under the ligament of the patella ; there we lost sight of it.

When the foreign body thus hid itself between the articular surfaces, it occasioned some pain, and swelling of the knee. The patient usually made it reappear in walking over an uneven pavement.

On the 15th, the foreign body had reappeared in the upper part of the synovial membrane ; the knee was a little swollen, and painful. Repose, poultice. The next day the articulation had returned to its natural state.

A. was very desirous to be delivered of his infirmity, otherwise I should not have consented to operate, because I do not believe that a surgeon should practise a dangerous operation to cure a simple infirmity ; but I had the idea of making in this case a new application of the method of subcutaneous incisions. I thought of extracting this foreign body in two operations ; in the first I would cut the synovial membrane and the fibrous and muscular tissues which covered it, on the foreign body, and through this incision I would pass the body into the subcutaneous cellular tissue. In the second time, practised ten or twelve days after, when the subcutaneous incision had cicatrized firmly, I would extract the foreign body by a simple incision. This idea pleased me ; I wished, however, to reflect some days on it.

Would these concretions, left in organized tissues, give rise immediately to a suppurative inflammation, which would propagate itself to the articulation ? I thought not ; these bodies were neither very large nor very heavy, nor very rough ; their texture had much analogy with that of living tissues, and the air would not gain access to the place which they occupied. These different circumstances appeared to me to guard against suppurative inflammation.

He selected the upper part of the synovial cavity, where it forms a cul de sac over the femur and under the rectus tendon at its outer

side, for the place of fixing the foreign body, and cutting down on it. He used a long, thin, sharp-pointed instrument.

“The patient being in bed, I placed myself at his left; I pushed up the foreign body in the external part of the upper cul de sac of the synovial capsule, where I fixed it a little above the patella, continuing to press it from below upwards with the left thumb and index finger. I then made an assistant elevate the skin of the thigh in a large transverse fold, above the foreign body; I thus brought towards this body a very distant portion of skin; I plunged my bistoury from above downwards, at the base of this fold, and directing its point towards the foreign body, I cut under the skin, parallel to the axis of the limb, all the tissues which covered this body. At this period of the operation I discovered that the foreign body had the consistence of bone; I was obliged to return three times to my incisions through the tissues to divide them, and I then felt the concretion fly from under my fingers which pressed it; it had escaped from the articulation. I then withdrew my bistoury, and the assistant let go the fold of skin. A few drops of blood, mixed with air, escaped from the wound in the skin. The foreign body had not escaped under the skin, but between the middle and external portions of the biceps. Firm bandages were applied to compress the subcutaneous incision, and prevent the foreign body slipping back. Though, contrary to directions, the man got up several times, neither pain nor stiffness followed in the knee.

“On the 16th day the apparatus was removed, when a second body, the size of a pea, and moveable, was found in the joint, and two days after a third, the same size.

“A second operation, differing little from the first, was performed for the second foreign body. At the time of the operation, the knee was a little swollen from the irritation of the foreign body. No bad effects resulted from this operation. When the first foreign body had been out of the synovial sac a month, and appeared encysted in its new place, it was cut out. Though no more trouble was experienced from the removal of this body than from the other operation, Dr. Goyraud thinks this operation unnecessary, and would, for the future, leave the little bodies alone, as they would give no trouble in their new situation in the cellular tissue.” Dr. Goyraud says, “Nearly every kind of foreign body in the articulations could be dislodged by my proceeding. If, instead of an ivory body a cartilaginous one was met with, this would be divided by the bistoury, but its fragments would be dislodged as easily as entire concretions.

Foreign bodies may adhere to the articular paries; this adhesion is generally by a membranous pedicle, which it would be easy to cut by the subcutaneous method. The operation would then be done at two intervals. In the first, the pedicle should be cut; in the second, which, should not I think, be performed till some days after, the concretion should be dislodged. If there exist several foreign bodies, they should all be united, and fixed at one

point, and should all be made to pass out by the same opening. This I would have done had I suspected the existence of two concretions in the case of A."

As Dr. Goyraud only has operated on this case, we are unable to judge how far this operation is superior in safety to that first proposed, we believe, by *Monro secundus*, and now so well known, of making a cut down to the foreign body, the skin being drawn so much to one side that, when let go back after the removal of the body, the opening in the skin and that in the synovial membrane do not correspond, and the air is thus excluded from the interior of the joint.—*Annales de la Chirurgique*.

On the Dropsy that follows Scarlatina.—In a very excellent article on this subject, by Dr. Willis, Physician to the Royal Infirmary for Children, he observes:

"After the most anxious inquiries into the subject, and with abundant opportunity of seeing the disease, I am bound to say, that I believe the dropsy to follow scarlatina in connexion with a variety of different proximate causes. In the bodies of those who had fallen victims to the disease, I have myself invariably found traces of a complication of organic diseases,—generally diseases which are referrible to preceding inflammatory action; very frequently sub-acute pleurisy with effusion of sero-purulent-looking matter into the cavities of the chest; sometimes inflammation of the pericardium, as well of that portion of the membrane which forms the bag, as of that which is reflected over the heart; occasionally, traces of endocarditis; sometimes, partial thickening of the valves of the heart, shortening of the columnæ carneæ, and invariably, hard yellowish white fibrinous concretions in its cavities. In the abdomen I have very constantly found effusion of serum, with flakes of coagulable lymph floating through it, and adhering in places to the peritoneum; more regularly than aught besides, I have observed a certain alteration of the kidneys, not very great in point of amount, but probably very important in respect of its effects. The substance of these organs I have always found externally paler than usual, of a tawney hue, not of the deeper or lighter brownish-red, which belongs to them in a state of health. They have also been particularly plump, and I believe somewhat larger than they ought to have been in subjects of the age of those which I inspected. Incised, the difference in the appearance of the cortical and tubular portions was found very remarkable; the cortical was of a pale fawn colour, becoming of a bright nankeen tint by exposure to the air; the tabular, on the contrary, was of a deep decided red. The whole organ presented a singular mixture of the anæmic and hyperæmic states; the substance of the gland looked firmer, dryer, and paler than proper, but it was mingled with blood-vessels, seemingly both enlarged and distended, so that when it was cut into blood followed the knife very freely.

Another important point is this, that in every case of fatal dropsy succeeding scarlatina which I have examined, I have found the ef-

fused fluid to contain a notable portion of urea. I have tested that from the ventricles of the brain, from the pericardium, from the pleuræ, and from the peritoneum ;—in all, the result of the analysis was the same. More than this, the blood itself in the different instances in which I have examined it, and they now amount to six, was ascertained to contain even a large quantity of the same principle. There may be then, there are, other organs implicated in this disease, but in all the cases of it which I have seen in the course of the last four years, and they may amount to between 40 and 50, the kidney has always been affected, if blood and pus-corpuscles in the urine, a scanty secretion, and an albuminous state of this fluid be allowed as evidences of implication of the secreting organ. Whether the affection of the kidney had the lead in these instances, or was but one in a more general train of morbid phenomena, I am at a loss to say.

“From all I had seen in my own practice then, I had come to the conclusion that the kidney was invariably affected in the dropsy that succeeds to scarlet fever. In seeking for farther information on the subject, however, I met with an account of an epidemic scarlatina, occurring in Berlin, by Dr. Phillip,* in which succeeding dropsy was very common, but in which the grand criterion of implication of the kidney—albuminous urine—was wanting. In sixty cases of the disease in which Dr. Phillip tested the urine for albumen, employing both heat and nutric acid as re-agents, no trace of this principle was discovered. The disease was extremely mild. No one died; so that there was no opportunity of ascertaining the state of the internal organs. It may not be irrelevant to state here, that granular degeneration of the kidney appears to be extremely rare at Berlin. In the course of two years, Dr. Phillip informs us that only three cases of this disease had been met with among the patients of the 10th district of the town, in which the number of sick average 150 per month. Though dropsy after scarlatina has appeared in Germany during one medical constitution without albuminous urine, or other evidence of affection of the kidney, it would clearly be as erroneous to infer that the disease never occurred, so associated, in that country, as it would be, (with a knowledge of Dr. Phillip’s cases before us,) to say, that in Great Britain it never presented itself, or never would present itself, save connected with renal implication. We ought in this country to be prepared to meet with general dropsy as a consequence of scarlatina without peculiar affection of the kidney; and in Germany they ought to presume that the disease will occur so associated. Indeed, in looking through an earlier volume of the same Journal, in which Dr. Phillip’s observations are contained, I came upon an account of an epidemic scarlatina by Dr. Kuhlbrand,† in which there is certain evidence of kidneys having been affected in many of the cases; for the urine was scanty, and in one instance of a brownish

* In Casper’s *Wochenschrift*, Jahrg. 1840. S. 562.

† Casper’s *Wochenschrift*, 1833. S. 920.

colour like a decoction of prunes, and pain was very commonly complained of in the region of the kidney ; the patients shrinking from pressure made over this region, and the pain often striking down into the bladder. In other cases there was no pain in the kidney. As I have myself met with dropsy after scarlet fever, it has always been in connexion with marked, and generally serious implication of the kidney, and I wish it to be understood that the following observations apply to the disease so associated."

He regards the affection of the kidney as only part of a general inflammatory disposition.

"The affection of the kidney, then, in the dropsy that follows scarlet fever, does not seem to me to explain the symptoms of excitement which so uniformly characterize the disease in its earlier stages : and it is this consideration that should incline us, I conceive, to view the local affection as secondary, or at all events as no more than one in the train of morbid phenomena which belong to, and constitute the disease of which general dropsy is so remarkable a symptom. Nevertheless, it remains true, that as this disease has presented itself in these countries, albuminous urine has been a very constant feature in its course, and has even been found, whenever it chanced to be looked for, as a precursor or herald of the effusion.

"The way in which the peculiar affection of the kidney that is indicated by the presence of albumen in the urine produces effusion, seems to me not very difficult of explanation :—it must be by robbing the blood of its due proportion of albumen, and so reducing it to the watery state which has generally been held to favour transudation through the parietes of vessels and the tissues of the body at large."

From his view of the nature of the disease, the treatment he recommends is decidedly antiphlogistic. Bleeding, general and local, over the kidney, tartar emetic, mercury, and purgation.—*London and Edinburgh Monthly Journal.*

Prevention of the Plague.—At a meeting of the Academy of Sciences, M. Aubert read a memoir on quarantines, and on the necessity of a reform in the measures relative to preservation against the plague. England has just made a decision, which in fact suppresses the quarantines for the provinces of Egypt and Syria. If the contagion of the plague is real, this measure exposes us to its introduction into Europe ; if on the contrary, this contagion is only a chimera, it does not the less give a deadly blow to our commerce, by creating for the transport of English merchandize, opportunities of despatch superior to those we can offer. A reform on this point is therefore urgent ; but must the duration of the quarantine be increased, progressively diminished, or altogether suppressed ? Half measures will not do here, for plague is contagious or it is not. The problem to resolve then, will be to preserve the quarantines without hurting commercial interest. Now M. Aubert has stated, that during 124 years,

there have been only sixty-four pestiferous persons in the vessels arriving in Europe, and that in all these cases without any exception, the plague had raged on board during the passage, and before entering into quarantine we ought to conclude therefore, that every vessel which arrives without pestiferous persons, and which has not had any during the passage, can be admitted without danger. A quarantine could, however, through excess of caution, be imposed with regard to vessels with foul bills of health, which would be five days for passengers, nine for merchandize; and with clean bills of health, one day for passengers, and six for merchandize. With such measures, we should no longer have a commercial disadvantage with England, at the same time that the danger against the introduction of the plague would be surely guarded against, if at least we consent to regard as exclusive an experience of 124 years.—*Gazette Medicale*.

Establishment of an artificial Anus in Case of Obliteration of the Intestinal Cavity.—The following discussion took place in the Academy of Medicine in Paris, and may prove interesting to our readers; we may premise, that when we were in Paris, two years ago, M. Amussat showed us a lady on whom he had performed the operation for artificial anus; the obstruction in her case was a pelvic tumor obstructing the rectum high up; she would have certainly died, no fæces had passed for twenty-six days, the belly was distended to the utmost degree, and the powers of life beginning to sink. He showed his operation to us on the dead subject; it is simply as follows: a horizontal incision is made about a finger's breadth above the crest of the ilium, beginning about a hand's breadth from the spine; after cutting through the oblique transversalis and lumbar muscles, and strong lumbar fascia, you arrive at a little loose cellular tissue and then the colon, which is greatly distended, and uncovered by peritonem. It is drawn out with a tenaculum, and opened with a crucial incision, the angles turned back, and fastened by four points of suture. I saw the lady between three and four months after this operation, she was in remarkably good health, the artificial anus discharged its functions extremely well, two motions being passed daily.

“M. CORMAC.—I greatly regret not having been present at the end of the last sitting: apropos of M. Amussat's communications, I could have given some positive information on the present state of one of the patients on whom he had established an artificial anus. This man, with whom I have travelled, is now quite well, he eats and discharges all his functions. He appears to me full of joy at having undergone the operation, and says in his enthusiasm, that if Talma and Broussais had been submitted to it, they would have been saved. M. Amussat certainly does not want my testimony to confirm the belief in what he has said, but I could not resist the desire to tell what I had seen.”

“M. BRESCHET.—I take entirely the same view as M. Cormac on the nature of the operation, and on its results. I also render full jus-

tice to M. Amussat for the happy modification he has made in it, but M. Cormac has said, that it was to be regretted that it had not been performed on Broussais and Talma. Well, I saw both of them in their last moments, and I declare that the case of neither was one in which the operation was indicated. Talma especially was examined by Dupuytren, who agreed with my opinion, and said there was nothing to be done; and that was true as independent of the affection of the rectum. Talma had dilatation of the heart, which would not have been long in killing him, perhaps suddenly on the stage even, in one of the parts where he displayed such pathos, in that of Orestes for instance. Broussais did not present more favourable conditions for the rational performance of the operation."

"M. BEZIN.—I cannot participate in the opinion of M. Breschet on the treatment which best suited the case of Talma, and that of Broussais. Far from thinking the sickness of Talma did not admit the operation of artificial anus, it is on the contrary in seeing it that I conceived the first idea of it. And the case was eminently favourable to the success of a trial of this kind, for there was no cancerous alteration, there was only a simple contraction at the upper part of the rectum. That he had at the same time a dilatation of the heart, I know, but this complication did not prevent a remedy being applied to the local malady, and I had formed the project which I even communicated to Dupuytren, to introduce an apparatus by the rectum to pierce the sac in which the fæcal matters were retained, and to open in the rectum itself an artificial anus by the assistance of this puncture.

"M. AMUSSAT.—I had no opportunity of observing Talma, but I am happy to see that the two physicians who assisted at his last moments, have each an opposite opinion on the fitness of the operation in this case. With regard to the nature of his malady, never I think was the establishment of an artificial anus better indicated, for the affection was not cancerous; there was only a scirrhus contraction, and nature had already begun in him the operation of which M. Bezin has just spoken, since there was an ulceration on the walls of the contraction, or rather on the partition which separated the sac containing the fæcal matters from the inferior part of the intestines. As to Broussais, I saw him in his last moments, and I can confirm that there was a complete stoppage of the passage of the fæces. At his death he had had no motion for twenty-one days. The operation then was very suitable, and it is even on this occasion that I first had the idea of my mode. I could then have first tried it on him, but I dared not, for it would have been difficult to have commenced with so great a man."

"M. BRESCHET.—M. Amussat says, that with Broussais the matters could not pass; but on the contrary, they passed so well, that he had from time to time considerable evacuations, clearings out, which he predicted even before hand, and at a stated day. You say that the operation was indicated; it is easy, doubtless, to make a diagnosis *a posteriori*, when the autopsy has enlightened you, but the question is very differently embarrassing on the living, and it is difficult to

decide it in as clear a manner when you can only touch the alteration with the end of your finger."

"M. AMUSSAT.—M. Breschet has just used the words clearing out, (*debâcles*) these words alone decide the question, and prove that the retention of matters existed with Broussals, for if there had been no obstacles, why were the evacuations so rare and so abundant?"

"M. GERDY.—The operation that M. Bezin has proposed to perform Talma, appears to me very rational, and I have myself often had occasion to practise it on new-born children having an imperforate anus, whether the intestine was wanting to a certain extent, or that there was only occasion of the inferior orifice. In these cases where I have thus acted, my proceeding has been crowned with success. M. Amussat fears exposure to the effused fæcal matter; this can be prevented in leaving a canula in the artificial opening, and on every account this operation, when it is possible, appears to me preferable to that of Amussat.* We must not think that the operation for artificial anus is rigorously indicated, while an interruption of matters even of long standing exists. You know the history of that surgeon of Rochefort, who quitting France to go to Senegal, remained the whole of the time of the two passages without going to stool, and only passed matter on his return into France, he lived thus a long time without accident."

"M. BEZIN.—M. Gerdy has just related the operations he has performed for artificial anus. In Talma the case was more serious, and the danger of effusion more to be dreaded, for there were two serous surfaces in contact, and the instrument which would have pierced the partition would have necessarily penetrated into the peritoneal cavity.

"M. AMUSSAT.—What M. Gerdy has said on the little danger of a long retention of matter is very just, but I will observe to him, that in all my operations, I have taken care to wait very long before determining myself to act."—*Gazette Medicale.*

* Alluding not to the operation we have described, but to the operation proposed by Amussat, for congenital malformation of the anus, an account of which was formerly given in this Journal.

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PART I.
ORIGINAL COMMUNICATIONS.

ART. XI.—*A Treatise on Midwifery. A new Edition published in the fifth Year of TAOU KWONG (1825). Translated from the Chinese by W. LOCKHART, Esq., M.D.*

[Communicated by Dr. CHURCHILL.]

SEVEN PREFATORY REMARKS ON THE SUBJECT OF PARTURITION.

1st. EVER since the publication of the Chan Paou, and other books on midwifery, the process of birth has been fully illustrated, and the rules for the preservation of the foetus, the management of delivery, and the after treatment have all been laid down so minutely and exactly, that nothing seems to have been omitted or left to subsequent writers to dilate upon; but the fact is, that some place too much reliance on prescriptions, without knowing why they are used, and others have merely a superficial acquaintance with the subject, while no one who has not been long devoted to study can possibly understand or follow the plans laid down. I have, therefore, undertaken to illustrate the doctrine of the spontaneity of nature, regardless of

repetition or tautology, with the hope of making the matter so plain, that on common occasions the attendants may not be over anxious, and on any emergency be able to use the proper means of relief, so that during the present and future generations pregnant women and new born children will be able to mount up to the region of longevity, which to me would be most gratifying. In what I have said I have chiefly confined myself to the explanation of the systems of the ancients, without adding any new or crude inventions of my own.

2nd. In this treatise a constant reference is made to the powers of nature rather than to prescriptions, a few of which have, however, been quoted, all taken from ancient medical works; also the plainest and safest have been selected, for in so common an affair as that now treated of, all strange and wonderful prescriptions must be rejected; and further, if we can succeed in preserving the patient without the use of even the simplest remedies, so much the better.

3rd. The style in which this treatise is written is for the most part low and vulgar, and may possibly excite the laughter of the learned; but it was originally drawn up for the benefit of women who, if they know how to read, may peruse it for themselves, but if not, they can get it read to them; and in either case that the meaning may be known, it is requisite that the plainest language be used, which they can distinctly understand and thus when the time of need comes, they can act accordingly. Moreover, not only should pregnant women be made acquainted with this publication, but all, whether old or young, male or female, should render themselves familiar with its contents, for it is much better to attend to that which is useful, than to be occupied with silly plays or foolish novels.

4th. This treatise should be in the hands of all classes, but rich and noble families ought particularly to study it, for the females in the higher ranks are generally brought up very delicately, they eat of the fat and the sweet, and they are so pampered by ease and indulgence, that their bodies become weak and

feeble. Besides which, rich people are proud and will not listen to advice, so that when such an event as that now spoken of comes suddenly upon them, they cannot remain quiet, but light candles and kindle fires, they shout and make a noise, running hither and thither, till a number of people rush into the chamber, and within and without there is nothing but clamour and confusion. Midwives also come rushing in one after another, all wishing to show their skill, and before the pulse of the patient gives the slightest indication of approaching delivery, or before the foetus has descended in the least degree, they hurry her away to sit on the grass, and should anything unpropitious take place, then a number of wonder-working prescriptions and strange remedies are confusedly administered, until in many cases, both mother and child are lost. Is not this to be deeply regretted, for if the people would only pay attention to this treatise they might ensure a fortunate result?

5th. Some may ask, why the following treatise commences with the subject of parturition?

To which it may be answered, that on such occasions people are generally in a hurry, and have not time for minute examination, therefore the most important matter is put first, so that on opening the door as it were, you may see the hills, and if people would but pay attention even to this one chapter, many mishaps might be prevented, and though this matter be first spoken of, that will not interfere with due attention being paid to the rules for the preservation of the foetus during pregnancy.

6th. The chapter on trial pains is also very important, for when we know the fallacious character of these pains, we may also learn how easily the business proceeds when the true pains come on; the subject of true pains is intimately connected with that of delivery, and demands careful consideration. Therefore some excellent remarks of former physicians, illustrating this subject, have been successively quoted, by which it will appear that the opinions here expressed are not erroneous.

7th. Since this book is intended for the instruction of all,

and may possibly tend to the removal of doubts, those who love their fellow-creatures ought, after reading it, to promote its circulation, those who have the means can republish it ; those who have not wealth, can transcribe a few copies, or they can read it over to others, and also distribute it wherever they go ; and this is a thing not beneath the dignity even of the learned. But whoever reprints or transcribes it, let him be careful not to add more prescriptions and thus commit a great error.

INTRODUCTION.

The great energy of nature is called life. This life or life-giving principle is every where apparent, and is most strikingly displayed in giving life to man. Now pregnancy is the commencement of human existence, hence it is called life ; further, the passing into life is a spontaneous operation of nature, as the eye sees and the ear hears, as the hand grasps and foot walks, all is perfectly plain and easy, there is nothing that calls for violent exertion and no difficulties present themselves. In the present age we often hear of difficult labours, now if they terminate favourably it is not because of human interference, and if otherwise, do you mean to say that this is the fault of nature ; can it be that nature should slay men in the very gate of life ?—it is manifestly impossible. Seeing that man is the most intelligent being in creation, how can we suppose that he should be inferior to other created beings ; now other things are produced without difficulty ; hence herbs and plants bud in their proper season, and the chicken leaves its shell at the appointed time, what occasion is there for any aid being given ? These processes are entirely spontaneous, and the application of force is in no case called for ; why then should the human species alone be an exception to this rule ? A boy had once a bone sticking in his throat, every effort was made to remove it in vain, and the whole family became most alarmed ; at length an old woman coming in, said, “ there is nothing strange in this,” and she ordered the boy to be kept quiet and lying on his bed, and to be fed with

rice gruel, and in three days the bone came out of itself. From this circumstance an important inference may be drawn ; a bone sticking in the throat is an accident, and still it may be overcome by natural means, how much more will this be the case, in the common course of those things which are wholly spontaneous. When a matter is originally easy and you put difficulties in the way, and when a business is one of every day occurrence and you treat it as one that is unusual or strange, are you not thus in error ?

I have adopted this principle and invariably acted according to it, and after many trials I have never experienced a single failure, and all without the use of much medicines. On this account, with my faltering lips and stammering tongue I have declared my practice to others, and succeeded in inducing many persons to adopt it ; so that for several years, throughout the whole city where I resided, difficult labours have been extremely rare. At length, regretting that while dwelling in a single corner, I could not be extensively useful, I gradually came to the resolution to compose the following manual, and to have it printed and distributed abroad. What other object could I have in view than to aid in the preservation of life ? all I wish for is, that men would implicitly follow nature, and not interfere with her operations by useless meddling, so that in every case that presents itself life might be preserved.

PARTURITION.

Six characters comprise the whole business : sleep, bear the pains, slowly come to the tub. When first the pains in the womb are felt, the woman must resolutely make up her mind, and understand that the circumstances in the birth of man have a certain fixed rule ; that this birth is a very simple matter, and one not in anywise to be dreaded. Thus when the paroxysms of pain come one after another without intermission, and after five or seven returns they become gradually severe, these are requisite for the birth of the child ; she should then

inform the persons about her, that they may be in readiness ; should the pains be unfrequent, they are mere trial pains ; let her be kept quietly lying down, and take a little refreshment, but not be disturbed or agitated ; at this time it is of the utmost importance that the attendant be vigilant and careful, and even when the true pains do come on, if she be hurried at once to the tub,* a great mistake will be committed. At this period it is of great consequence that she should bear the pains resolutely, not anxiously inquiring whether they are the trial pains or the true bearing pains. When there is an intermission of pain, she may eat a little rice as usual, and sleep or wake till the pains be fully established, and thus she will certainly have an easy labour. Moreover, the trial pains, together with the true pains, must both proceed for a certain length of time, and by attentively watching their frequency or otherwise, the state of the case may be known ; but she must on no account go on slight occasions to the tub, or sit on the grass, twist her loins, or rub the abdomen, this is carefully to be avoided. Also when she stands up, she must stand erect, and when she sits, she must sit upright, and not writhe and wriggle her body about ; she ought also to be told, that she must be completely self-possessed ; that no one can take her place ; that her own life may depend on the issue of the matter now in progress ; and that it does not concern others to the amount of a single hair. At this time she ought to keep up her spirits, and to economize her strength, and be resolute ; it is also advantageous for her to lie down and sleep, shutting her eyes and composing her mind ; if she cannot sleep, she may rise up, and leaning on some person, walk about slowly, or taking hold of a table, stand upright for a while ; then if the pains be tardy she can again lie down and sleep, ever remembering that sleep is one of her best aids ; but while sleeping she must always lie on her back, so

* According to Chinese usage, when the strong bearing pains come on, the woman is supported in a half reclining posture, and a tub or deep wooden platter so placed as to receive the child on its expulsion.

that the centre of the abdomen being relaxed the foetus may easily turn itself; also when the woman sleeps, the foetus sleeps; and in turning her body she must not exhaust herself, but be careful of her strength, that the foetus may have more vigour when it is required at the moment of expulsion; this is to be ever borne in mind attentively. It is of no consequence whether it be late or early (since the commencement of labour); but she must not go too soon to the tub or use efforts, and she must not listen to what some midwives say, that the head of the child presents externally, causing her to go at once to the tub, for this would mar the whole of a business, which is ever completed by nature alone. If at the proper time the foetus be able to work itself out, what need is there for being hasty? because it is to be feared, that as the strength of the foetus is but small, if, when it turns its body, this strength be exhausted, it is brought to the gate of life, but cannot work itself out. Still there is a time when it is proper to make a slight effort, and then one exertion will be sufficient to cause the foetus to lose its place and descend. Thus at the set time the melon ripens and the tendril breaks. At this period the blood and breath are dissipated (partial recovery), the bones and joints of the body are loosened for a moment, a gush of water takes place, and without effort the child is born, and the mother herself does not know how it came about. Some say, that as we make an effort in passing an evacuation from the bowels, why not do the same in labour? But they do not consider that the fæces are mere dead matter, and therefore an effort is required, but the foetus is able to turn itself, and the time that it does so must be waited for; not only is the use of effort needless, but it is absolutely injurious; for the foetus sits upright in the womb till the time of birth, when it bends down its head and turns its body towards the contracted opening of the womb patiently, till it turns its body to the gate of life, the head being then below and the feet above, as though it were suspended upside down, it comes out at once. If the foetus has not yet turned its body, and efforts be made to

expel it, then the feet will come out first; this is a strange occurrence, and an elegant name is given to it; viz., “the foot-treading or water-lily birth.” If the turning of the body be not quite complete, and an effort of expulsion be made while the foetus lies transversely in the womb, then a hand will come out first, and this is called the “begging-salt birth.” Again, if the body be turning, and yet not quite straight, and efforts be made too early, the axis of the body being directed to the right or left, the hip or breech will present, but cannot come out; and all this arises from exertion being used before the proper time. All persons should be earnestly exhorted on no account to use improper efforts; at the same time efforts are not altogether to be discarded; but when used, it is only to be for the period occupied in drinking a cup of tea: above this all irregular exertion is to be avoided, for, as in the evacuations, if the fæces be not prepared, whatever efforts be made they will not come out, how much less in bringing forth a child. Some one may ask how is this swallow-of-tea time to be known, that efforts may be made? The time is certainly not always the same, if the foetus be pressing downwards to the gate of life, then the bones and joints of the woman’s body are relaxed, the chest bears down, the abdomen becomes distended or tense in a remarkable degree, the evacuations pass involuntarily, scintillations, as of golden flowers, are seen darting before the eyes, this is the precise moment, and if she be now brought to the tub, some efforts made, the mother and child will be separated; where lies the difficulty in this? Some persons say, we cannot wholly credit this story of the child being able to come out of itself, what was the opinion of the ancients on this matter? The remarks of the ancients were of a general nature, because they could not enter into the minutiae of every affair, expecting that their posterity would embody their ideas. Let the quotation consisting of the four following words be observed: “melon, ripe, tendril, break,” and then it will be seen that the foetus can work itself out. The other four characters, “pull, stalk (of grain), increase,

growth," will show how great is the evil of mistaking the trial pains for the true bearing pains (that is, of hurrying the labour). The chick while in the egg, when its days are accomplished, can break the shell of itself and come out ; what need is there, then, for any divine medicine to urge on the birth, or for the skilful hand of the midwife ? The ancients speak of a pregnancy that was protracted for three or four years, and afterwards the child was born ; and this was because the foetus was not willing to work itself out, and who could then constrain it to come out ? and, on the contrary, when it chooses to come out, who can hinder it ?

Some may ask, as efforts are not to be used too early, might not also injury arise if they be used too late ? This is not of any consequence, for if the proper time have arrived, the child must come out, but if by any chance it should not do so, this is because its strength is exhausted, that it has no power ; the woman ought then to lie down and sleep quietly, so that the foetus may settle into the centre of the womb, and sleep also, then by one exertion, and almost in a moment, the business will be completed. Some may say, if by chance the child should come to the gate of life, while the mother is asleep, would there be no difficulty here ? It would be rather beneficial, for if when the child is about to descend the woman be sitting or standing then the child turns itself into an inverted position ; how can it remain long thus ? But now the woman is asleep, and the child is also asleep, therefore what difficulty can arise ? But he may still object, saying, what if she should be troubled or disturbed on this account ? But she has not been disturbed for ten months, and why should she be so now. Some may ask whether it is good to bear the pains patiently for a long time ? This is the best thing that can be done ; whoever heard that a woman being clandestinely delivered ever had a difficult labour ? some say that the gods interfere on such occasions ; but this is not the case, it is because she has become impregnated clandestinely, and then she is afraid that any one should know it, and

then exerts herself to bear the pains quietly until the proper period, and then the child is born spontaneously ; the reason of this is perfectly clear and there is no room for doubt.

Some may say, “ that there is no need of effort, we have been already informed, but if efforts have been previously used, in an improper degree, so as to produce a transverse or unnatural presentation, are there any rules for obviating this difficulty ? ” The woman ought to be put quietly to bed, and to take a large dose of the decoction of the kung and kevei ; then the hands and feet of the foetus are to be taken hold of and properly adjusted, and after a night’s rest she will certainly be delivered. Another may ask what is to be done, supposing the foetus cannot be adjusted ? If the woman will compose herself to go to sleep there is no danger of the foetus not being adjusted, but if at this time she will not sleep, but tosses about her arms and legs, and persists in taking all sorts of medicines, there is then no help for her.

Some may ask, what is the reason of prolapsus uteri ? It is entirely the result of using efforts, having in the early stage of the business exhausted her strength at the time of labour, she again uses violent straining, so that the blood and spirits are forced downwards, and the uterus follows the child. This having once taken place is likely to recur on every occasion ; if people would but think of the melon falling off when fully ripe these accidents would be avoided.

Some may ask, what is the reason that in some cases the child is born after but one pain, and without any assistance having been given ? This is just as it ought to be ; what is there strange or marvellous in the matter ? for the strength of the womb being sufficient for effecting the separation of the mother and child, the latter wishes to come out ; and even should you wish to do so, you cannot restrain it. This is ever the case—each has its own particular time ; all that is requisite is the patient to wait till this moment comes. Some may ask should midwives not be employed at all ? Since we have this class of

persons we cannot avoid employing them, but we ought to use them and not let them use us ; entirely depending on our own decision of mind, we ought not to receive orders from them. Generally speaking, these people are stupid and ignorant, and not acquainted with the principles of things ; immediately they enter the door, instead of inquiring, whether the stage be early or late, or whether the pregnancy be complete or not, they order the woman to sit on the grass and to make efforts, insisting that the child's head already presents, and they tell her to twist her loins ; they rub her abdomen, or they introduce the hand into the vagina and endeavour to feel the child, this is highly injurious and hurtful, and arises altogether from a desire to appear to be doing something, unwilling to allow things to go on quietly. There is also another class of perverse women, who take advantage of this time to quarter themselves upon persons for the mere sake of gain. The evil of this is by no means slight. It is said, that between the Woo and Yue countries, these women are called " secure females," between Keary and Hevery they are called " receiving-to-life" females ; between We and Ning they are called " welcome life women." Regarding the meaning of these two words, *welcome* and *receiving*, they are used because these old and experienced women are directed to receive the child as it comes down, and to take it up and to put it on the bed, but they are on no account to pull it by the arms or legs.

For wealthy and honourable families, midwives are called early and kept in the house till the time of labour, but this is neither pleasant nor profitable ; for both at the front door and back gate people are constantly passing in and out, causing a continued disturbance ; thus, when there need be no trouble at all, these hirelings are sure to produce it.

Some ask, at the time of labour, is there any benefit to be derived from the use of medicines, and is it right to use them or not ? It is better not to use them. In ancient times of famous prescriptions, none were in greater repute than rats,

kidneys and hare-brain pills, and at present none more so than the “restoring-to-life powder ;” their use is deprecated, not because they are entirely useless, but because they are used improperly. If efforts be not made, and meddling with the hand be avoided, and the woman allowed to have the benefit of sleep, she will be readily delivered, why then use medicine ? but should there be anything wrong, then sleep is the best restorative.

Some ask, to take medicine, is it beneficial or injurious ? How can it but be injurious ; both the mouse and hare pills assail the subtle fluid, and they injure the blood ; the life-restoring powder impairs the blood and disperses the subtle fluid : for when the mouse and hare medicines are administered they must be joined with fragrant drugs ; now at the time of labour the blood-vessels are relaxed, and the subtle fluid deficient and rapid ; if then remedies for dispersing the fluids be given, and the child should be born before their influence is dissipated, how can this but be injurious ? Moreover, to cause the pores of the skin to be opened so as to admit the wind, does great injury. In the compounding of the life-restoring powder, rhubarb and the *rosa sinensis* are chief ingredients ; the other things that enter into its composition are of a diffusive character : now the blood being already vitiated, if you injure it still more, fever will be often induced after delivery, and innumerable calamities follow, all arising from the improper application of medicine at this time, who would ascribe the fault to the medicine itself ? In regard to these different prescriptions, it appears, that both ancients and moderns have called them divinely efficacious and wonderfully precious remedies ; since it is thus, the reason of their being much used is evident. To give medicine is at times very proper ; but some men think only of the advantages and never of the injury that may possibly result from it. Some ask, are there no medicines then that can be used ? There are some, as for instance, a strong decoction of the kung and kivei (two fragrant *histus*), with powdered citron peel, and these can be used without intermission, for in pregnancy

the greatest requisite is a sufficiency of blood. If the blood be sufficient, as in the case of a boat which has sufficient water, what obstacle is there to its progress? so it is to be feared, lest the pregnant woman should not have a sufficiency of blood, also lest the membranes be broken too early, thus making the parts rough and dry; now let these two prescriptions of the kung and kivei be much used, by which means the blood will be strengthened and new blood formed. These medicines are easily procurable; they grow every where, they make them firm and vigorous, and produce no ailment after delivery; truly this is advantageous, and no injury can ensue. Former philosophers, who were thoroughly acquainted with the male and female principles of nature, compounded these excellent remedies, in order to benefit after ages. How very foolish it is for men to open their ears and shut their eyes, and considering these remedies to be common and useless, yet go about, looking for something out of the way, never thinking whether their use be beneficial or otherwise.

Some ask, if these things be so, how can there be in the world any such thing as a difficult labour? Sometimes these things will happen, either because the mother is exhausted, and the nourishment of the womb not sufficient, and the blood and subtle fluid not supplied abundantly; or the woman has been sick, and some poisonous influence thus affects the womb; or the husband and wife have had connexion too frequently, and this excess has injured the womb: or for her usual diet she has eaten too much pepper and ginger, or articles roasted or fried, and too heating, and the influence of the fire affects the womb. Also accidental slips or falls do great injury, and occasion difficult labours, or produce abortion; with these exceptions, there are no difficult labours. Also when the weather is very cold, so that water becomes frozen, and the supply of fuel in the houses of the poor being deficient, the blood becomes chilled and frozen, and the child cannot be born; this may also arise from her going too early to the tub, and resting there for a long

time without her clothes ; but if she be covered up and kept quiet, and there wait patiently for the time of labour, all obstacles will be removed. Either on account of a difficult labour, or from the coldness of the weather, the child, when born, may be almost dead ; it ought then to be instantly wrapped up in warm clothes, and a paper notch, dipped in fragrant oil being lighted, the cord is to be tied and slowly burned through ; the warm spirits enter the abdomen, and by-and-by the child cries, and is restored to life, but if the cord has been previously cut through with scissors, then there is no hope.

Some ask, at the time of labour, what diet should be used ? At this time the mind is disturbed and troubled, and there is much pain in the abdomen, the animal spirits are agitated, and the mouth loses its power of taste ; it is therefore of importance to prepare nourishing food, but care must be taken not to use fat or unctuous articles ; if she cannot use solid food, fowl or duck, or meat soup is useful ; the oil being removed so as to make it clear and pure ; the woman may constantly sip this, and it will strengthen and recruit the animal spirits. Human life depends upon eating, and how can any one pass a single day without doing so ?

THINGS TO BE AVOIDED.

At the time of labour, two or three experienced persons should be in attendance, more are unnecessary ; and the whole posse of female relatives are to be respectfully dismissed with kind words, and not permitted to enter the chamber. In summer, especially, there must not be many persons in the room, lest the heated air prove injurious, and the woman be thus excited and agitated, and dizziness of the head caused, the ill consequences of which are by no means slight. In the chamber people must walk lightly, and speak softly, much talking is improper, for it is very advantageous that the woman be able to sleep. It is also of the first importance that she be told to be calm and composed, and to bear the pains with fortitude ; all

alarming and wonderful stories must be avoided, as also whispering, sighing and groaning, all these may bring on trouble or confusion of mind, and thus both mother and child be injured. Every thing must be as quiet as usual in the chamber, and people must not come before her calling upon the gods, making vows, and invoking heaven and earth. Only one midwife is to be in the room, and she is to sit quietly on one side, and not be making a great clamour. In regard to diet, she ought to take little and often, soup made of the intestines and lungs of fowls and ducks, is very good. In winter, a pan of fire must be placed in the chamber, and in the summer vessels of spring water so as to receive the heated air, and these are to be frequently changed.

THE STRAINING OR TRIAL PAINS.

Some ask what is the cause of these trial pains? At the seventh or eighth month the hands and feet and fine functions of the foetus are perfected, and it can then move and turn itself about; if the woman should have any heat in her abdomen, or rises and rests at improper times, the foetus will be disturbed, and its violent movements will cause pain; it is not at all surprising that this should happen. If the pains should not abate, two or three doses of the medicine for calming the womb may be used, and the pains will then disappear; after this, if her time be easy, the woman will be delivered in a few days, but if more distant, then in a month, or at the utmost, three or four months; many persons are not aware of this, and unwittingly bring the woman to the tub, making her sit or stand there all day without letting her lie down, or they squeeze the loins, or rub the abdomen, or they introduce the hand, or employ medicines, thus using means to cause the expulsion of the child; by treatment of this kind the woman may become more dead than alive, and the child also be endangered; really this is too barbarous to think of. The difficult labours to be met with in the world are mostly owing to those causes; for the womb is

not sufficiently nourished, and the blood and subtle fluid are not abundant at this period, and it is like breaking the egg to take out the chicken, or tearing the cacoon to help the silk-worm ; can they live under such circumstances ?

Some ask, how are the trial pains to be known ? Only observe the order of the pains, when the paroxysms gradually increase in strength one after another ; these are the true pains ; but when they are at one time gentle, and at another severe, these are only trial pains. Some ask, what is to be done when the woman has injured herself by eating or by taking cold ? If she has eaten improper things, she will have pain in the region of the navel, and if the hand be pressed on this part she will have more pain, or at the side of the navel there will be a hard swelling. The pain, in consequence of taking cold, is most frequently below the navel, and is incessant, neither increasing nor decreasing ; the application of warmth will gradually remove it.

Some ask, whether there are many cases in which trial pains present themselves ? There are very many. It may also be asked how this is to be known ? By the great number of difficult labours at the present day. Some ask, if it be thus dangerous to mistake the trial pains for the true pains ; then if we should mistake true pains for trial pains, and so let the time pass by, would any evil consequences result from the error ? None at all ; if it be really come to the time, the child will work itself out, and although the time should have passed by without the mistake being discovered, the child would only fall into the mother's dress, or be born on the bed ; what harm would there be in that ? and what occasion is there for such incessant looking on this point ?

ILLUSTRATIVE CASES.

Some time ago, Pofa, the secondary wife of Mr. Chang, who lived at Hōsham, a woman of tender years, though fully formed, when she became pregnant, labour came on at the eighth month ; she had severe pains for several days, and the child

was born, but shortly died ; she again became pregnant, was prematurely delivered, and the child died as before. I then said, that they must inform me when she was again in labour. The next year, at the eighth month, she was again in labour, which continued for three days, without success ; when suddenly recollecting my words, they sent off post haste to call me ; on the road I met the coachman, who said he was going to call her parents to take a final leave of her ; when I arrived it was already night ; on feeling her pulse I found it was not yet at the lowest ebb, and that she was still healthy. The midwife, on being questioned about the affair, said, that the child's head presented but could not come out. I ordered her to be put quickly to bed, and not to be disturbed, giving her at the same time a little medicine to soothe the womb. The next morning her husband came to me laughing, but did not speak. I asked the state of matters, and he said all is well. Yesterday, said I, the child's head was at the gate of life, how is it now ? He answered, it has disappeared, and, with a loud laugh, went off. 120 days after this, that is at the term of twelve months after conception, she was delivered, and they said I was the child's father (ascribing the merit of saving its life to me), and it is now eight years old. And now I come to know, that on former occasions, they had pulled out the child by force, and it was only because the woman was young and strong that she survived.

While I was living with Mr. Chong, one day, on my return from the city College, I found that there was a favourite concubine who had been in labour two days, and was not yet delivered ; in her case, also, soothing medicine was applied, and at the end of sixteen days, she was delivered of a daughter.

The literary officer, Zac She Tze, my near neighbour and intimate friend, said, that formerly his younger brother's wife had, at one birth, three sons ; both mother and children all died, one remaining still in the womb.

At present, a female slave in the family was pregnant ; she has a long and very protuberant abdomen, and he was a little anxious about the mother. At the time of labour, she was directed to sleep quietly, and to take the infusion of kung and kevei every intervening twelve hours till delivery, and in one day and a half three children were born.

In the 48th year of the reign of Kanghe, the Lieutenant Governor, Yih, has recorded the following case : “ Tzin, his wife, was in labour nine days and nine nights, but was not delivered, and but little life remained in her ; they heard that I had some hare brain pills, and came to my house to ask for the medicine. I inquired into the nature of the case, and they said that the head presented, but would not come out. I told them to let her sleep ; they again applied for the medicine, and having urged me, I went with them, and gave her some decoction of kung and kevei, and the next day she was delivered, and both mother and child were saved.” All the above circumstances were caused by the woman using efforts, and thus the child becomes transverse in the womb. Who ever heard of a person being suspended by the heels for ten days, and yet living ? Formerly a woman was in labour, and the child’s hand came out, and as they could not put it back again, the midwife sharpened a knife to cut it off ; on seeing this, I was much annoyed, and instantly directed that the woman should be allowed to sleep, and to take a large dose of the kung and kevei decoction ; by gentle efforts the hand was at last extracted. The next morning the child was born, and both mother and child did well. The right arm of the child was bruised and slightly blackened, but in a few months this all passed away.

ON THE PRESERVATION OF THE CONCEPTION.

The womb being impregnated, it is of the first consequence to abstain from the gratification of the passions ; if that cannot be done, they must be restrained as much as possible. For when the desires are few, then the mind will be pure and the

womb at rest and in quiet, and not only will it be composed, but there will be easy labour, and the running will also be easily accomplished; there will be few sicknesses, and the woman will enjoy long life. During pregnancy it is very beneficial to use a little bodily labour. Thus we see in the villages that the women who labour in the fields, and the slave women, and the other of the lower classes, miscarry very seldom indeed. The reason is, that they have to work hard, and thus the blood and spirits pervade the whole body, and the muscles and bones are all strong. The womb lies in the middle of the abdomen, in its natural position, and if afterwards it should receive any slight blow from accident, this will not injure the business at all. But if the woman be unoccupied and at ease, then the muscles and bones will be soft and fragile, and the blood and spirits do not circulate actively, and if the slightest accident should happen, abortion takes place immediately. It is not to say, that instantly after conception she must go to work hard, but it only means that in every day life she should not be idle and inactive. If she be not on common occasions accustomed to labour, but immediately after conception begins to labour, this alone would be sufficient to injure the womb, for how, in this case, can the sinews and bones be braced up and firm?

Foo King Keary was the wife of a noble of 100 chariots, and even when old still continued to spin flax. People in humble life as well as the rich and noble, the young as well as the full grown, should all be diligent in business; why should they give way to idleness or sloth, and thus bring on sickness. When a woman knows that she is pregnant, a roll of cloth ought to be procured, six or seven inches broad, and in breadth proportioned to the size of the individual, and sufficient to be passed like a belt twice round the loins; this is to be worn till the time of going to the tub, and then it is to be unloosed and removed. If they are only trial pains, it is not to be opened. This has two advantages, before the womb becomes large the use of such a bondage strengthens the loins and spine, and should any acci-

dent occur, it will not affect the womb; another advantage is, that it keeps the abdomen confined, and when it is removed, the abdomen being expanded or suddenly set at liberty, it will be easy for her to turn herself about; this rule is well known in my own neighbourhood, and I wish it to be promulgated far and wide. During pregnancy, and while sleeping, the woman ought to be on either side alternately, and not to rest always on the same side, and thus the foetus will be able to rest itself conveniently on both sides, and become accustomed to the use of its hands and feet, and at the time of labour it will lie exactly in the centre, and be expelled without the slightest difficulty.

ON DIET.

Regarding the medicines proper for the preservation of the pregnancy, all medical authors give full instructions; it is, therefore, unnecessary to enter on this subject, and it only remains now to speak a few words on diet; nothing has hitherto been said on this subject, but it must now be spoken of. The diet ought to be thin and mild, and not fat or rich; light and pure, in preference to heavy and gross; sweet and cool, rather than bitter and heating; moreover, fresh vegetables and good rice are fully sufficient for support; even in poor families these things are not wanting; but in wealthy noble houses there is every day a sufficiency of the fat and the sweet; it is, therefore, well to be careful and moderate, not giving way to appetites, but being content with a moderate quantity of food. The bill of fare may be as follows: the things that may be eaten are, pigs' chitlings, and lungs in abundance; fowls, ducks; fresh fish, dried fish; "beche de mer," or sea-slugs; mustard plant; the trassa bicarnis; young shoots of bamboo; and very frequently take linseed and thin pulse cakes; the heads of water lilies; ripe gow (a water plant); wild herbs, and the fruit of the crow's-head plant; all these must be cleaned and purified: she may also advantageously use thin soup, the oil being removed from the surface; every thing must be cooked by itself; and she must

not use things fried in oil; this is chiefly said to those who love rich food. With regard to those who live habitually on vegetable diet, they ought to have nourishing food to support their strength, so as not to live too poorly at this period. After the sixth or seventh month of pregnancy, thin pulse cakes and linseed must be much used; and it does not matter if they be eaten every day. Linseed removes anything injurious, and the pulse cakes make the womb moist and slippery; they are both pure and nourishing; their use by rich as well as poor is to be highly recommended. If the woman has eaten 100 or 200 of these pulse cakes, even her first labour will be easy; and if they be eaten with linseed, so much the better; but the linseed must on no account be fried.

Some things are to be avoided: as, pepper; ginger; things roasted or fried; wild animals; unusual or out of the way articles; pig's liver; dog's flesh; mules', asses', or horses' flesh; things that die a natural death; pig's blood; crabs or shell fish; frogs and eels; she must not drink much wine, or take medicine irregularly. A pregnant woman must especially avoid the sight of slaughter and of cruel or wicked deeds; she must not look at the building or repairing of houses, or the digging of foundations; neither must she see tortoises or hares.

ABORTION.

Abortions generally occur in consequence of prolapsus uteri; the whole of the treatment requisite in these cases is similar to that adopted during real labour. The treatise on Easy Labour says, abortions must not be lightly regarded, as they consume tenfold more strength than natural labours do. The learned See Leit Tze says, "Abortions are more dangerous than natural labours; the natural labour may be compared to fruit, which when fully ripe falls off itself; but abortion is like the plucking of unripe fruit, and thus bursting its skin or shell, and injuring the branch or root of the tree; but persons are constantly making light of this, and many women die in consequence." A

few days after abortion, general fever may come on suddenly, the face is flushed, the eyes red, the mouth dry, there is great longing for cold water, by day and night she cannot sleep, this arises from loss of blood, and the decoction of Kung and kevei must be administered in order to supply the deficiency; should this complaint be mistaken for a common cold, and the soapstone or water lily (a febrifuge), or other cooling medicines be administered, the woman will certainly die.

AFTER TREATMENT OF PARTURIENT WOMEN.

As to the general principles after treatment, all books are sufficiently explicit. I shall not at present repeat these generalities, but confine my attention to one or two of the most important and difficult points, which have not yet been brought forward, and thus present them for the selection of the reader. After labour let the woman be put to bed, let her have a high pillow to lean against, so that she may not lie flat down; the knees are to be raised and not to be stretched out; and let her immediately drink a cup of boy's urine warmed; she ought to shut her eyes, and be kept quiet; but she must not sleep soundly, for should she be very weary and sleep soundly the blood and heart will flow upwards and occasion dizziness of the head; she must not be spoken to in a loud tone or in a hurried manner, lest she be alarmed; she must be protected on all sides from the wind; she must not be asked whether she has pain or not; she must constantly use boy's urine mixed with warm wine in equal quantities, taking a cup at each time, so that in one day three or five cups are taken. After three days she may cease taking this; much wine is not to be given; by following this regimen, if there be not much general disorder, there will be no need of any medicine whatever. After delivery, let a small iron weight, or white pebbles out of a brook, be taken and made red hot, and then dropped into vinegar, and let the fumes enter the mother's nose, in order to drive away dizziness of the head, and to collect together the

spirits ; it also removes all impurities ; let this be done three or four times every day, and after seven days you may cease. If blood rush towards the heart, occasioning dizziness or melancholy, so that she does not pay attention to anything that is going forward, then take a bundle of leeks, and having chopped them small, put them into a teapot having a narrow spout, and having poured in a large cup full of hot vinegar, put on the lid, and the patient being raised up, the spout is to be applied to her nose, that she may gently snuff up the vapour from a little distance. Whether a boy or girl be born, is according to the husband's fate, for the sacrifices of a hundred generations depend on the husband's family ; how can it result from the family of the wife ? if daughters be successively born, this is a common occurrence, why should it cause distress and grief, and produce painful feelings ? when we see a stupid husband taking offence against his wife and making himself ill, shortening his days, how very ridiculous and absurd this is ; it is far better on all such occasions to be placid and liberal minded : there are even some who disown their daughters ; those whose cruel hearts thus act contrary to the principles of reason must ever be haunted by future calamities. The after treatment varies according to the custom of different places. In some parts they use red sugar, in others shon chachoo yu, an acrid plant, a drink made of pepper boiled in water ; but there is nothing better than the hot wine and boy's urine ; but should there be severe pain in the bowels, the use of sang hiva soup will be found very beneficial.

The same diet also is not used in all places ; according to the usage of Wei, when the woman has just been delivered they give fowl and dry rice ; in Woo they give stewed vegetables and rice gruel until the end of the first month, and afterwards leeks or onions ; all is useless and ridiculous, for in Wei the common diet is rice gruel ; and after labour, while the stomach is still weak, they add rice and fowl ; this is, perhaps, not right, but still there is not much harm done ; while in Woo they eat rice the whole year, except till after delivery, when the bowels

are weak and empty, and just at the time when the woman ought to have something nourishing, so as to produce more blood and spirits, she is put upon vegetables and gruel diet. The habits which people acquire are very strange, and they become so attached to them that they cannot be persuaded to discontinue them; and if they are told that these customs are injurious, they will not believe what is said, and thus many lives are lost; but they fall into these habits unconsciously, and in the end they become weak and feverish, and cough comes on; this is all highly objectionable. When the blood is disturbed and the spirits oppressed, a large dose of ginsery and hevoyke ought immediately to be administered, so as to support the system, and in this way the case may still be remedied; and yet there are some who say that it is exhaustion in consequence of labour, and employ cooling medicines to check the fever, till the patient is carried off without warning; this is indeed deeply to be lamented.

Some ask, what rules are the most proper to be adopted in the after treatment? During the time for gruel give gruel, and the same with regard to rice; for the first three days she must only take fowl broth, clear and plain, the oil being carefully skimmed off; she ought not to eat fowl itself; and for ten days she must not eat pork, and for the first month she must not eat lard, because it interferes with the course of the blood and spirits; in regard to other things there is no fear. It is good to eat chicken, because such diet removes local accumulations and produces new blood; but it is essential that it be thoroughly cooked, and it does not matter if it be used from morning till evening. In regard to sugar and eggs, these are raw things which produce congestion and may prove injurious, therefore they must not be eaten; ducklings also cannot be used. Some ask, is it requisite to remove the fat from all dishes, and ought they to be taken pure? It is not only of importance that they be pure, but they must also be thin, for thin and pure are according to the rules of nature, and they purify the animal spirits; but gross articles of food are hurtful.

Some ask, how is this to be known? A pregnant woman ought to drink thin wine and eat light food; if she drink strong wine or eat salt meat, all the fluids will be burned up and dried, and she will have no milk; this is the rule regarding light and heavy food; but still the custom of Woo is not to be followed in the eating of stewed vegetables and rice gruel only. How much do wrong plans surpass in number the right!

REGARDING THE DEATH OF THE FŒTUS IN UTERO.

When the fœtus dies in utero, the citron ought to be used, when the fœtus will be brought away; and if it does not descend, then one dose of the tranquillizing stomach powder and two or three more of sulphate of soda must be given, and then abortion will take place. The ancients had their established rules, and each followed his matured plans; these have all been now verified and found correct. But strange and wonderful prescriptions must on no account be followed, lest the woman's life be destroyed. Some ask, how can it be known when the fœtus is dead? When the face is flushed and the tongue livid, the mother will live and the fœtus will die, the tongue being red and the face livid, show that the fœtus will live and the mother will die; the face and tongue being both livid, the mother and child will then die; moreover, the pains that are felt in the expulsion of a dead fœtus, are not the same as those experienced in natural labour.

REGARDING CASES IN WHICH THE MEMBRANES DO NOT DESCEND.

Some ask, what is the reason that the membranes are not always expelled? It is because the woman goes to the tub too early. At the time of labour, the joints of the pelvis ought to be expanded; in the strong, this takes place at the proper time, and after a few days they unite again; but in the weak, they will not be united before a whole month has passed. But if the woman does not wait for their expansion, and uses violent efforts, then the fœtus will come out, and the joints of the pel-

vis being still closed, the membranes are not expelled. Some ask, I have heard that this is a very dangerous circumstance, and sometimes even fatal, is it so? There is no need for apprehension or alarm, neither must medicine be given, and if the membranes do not come away, immediately take a hempen thread, and having tied it to the navel cord, double the latter, so as to make a loop, then tie it again with the thread and fasten a small weight to it, then separate the child by cutting the cord, and in three or five days the whole will shrink, become dry, and pass away. This plan has been often adopted with success; it is only necessary to inform the woman what has been done, so that she may be quiet and not alarm herself; the midwives must not be allowed to pull away the membranes; many have lost their lives from this, therefore be very careful.

DEFICIENCY OF MILK.

Deficiency of milk arises from want of blood, as when the mother has lost much of that fluid during labour, or when she has been previously sick; this often happens in poor families, and among female slaves; the women after delivery are not sufficiently provided for and nourished, and thus the blood-vessels become dry: or the person being more than forty years' old, the blood and spirits have somewhat diminished; all these things cause the supply of milk to be deficient, but a dose of the decoction for promoting the circulation of the blood may restore it; but if she should confusedly use the armadillo scale medicine, or the wang-pūh-lew-hing prescription and such like, these remedies will be without benefit; or if she should endeavour by force to promote the circulation the milk will be thin and meagre, so that the child will not be able to live long upon it. Moreover, when the blood and spirits are injured or disturbed, and the woman becomes sick after labour, and the breasts in a short time becomes dry, this is a very unfortunate circumstance.

MAXIMS.

The great pharmacopœia says, that pregnancy generally continues for seven or eight months, and sometimes for one or two years, and, in some rare cases, even for four years, and this should be made known. Yong uze Keen has discoursed on ten labours with great minuteness and particularity, and in what I have already written, I have been under great obligations to him, but I now wish to go into detail, and will carefully draw up a chapter on injuries of the womb, which will sufficiently exhaust the subject.

About a month before delivery, pain may suddenly arise about the region of the navel, as if the woman was about to be delivered : nothing comes of it ; these are called the “ the month trial pains,” and are not the real pains, and as these are not the true pains, she must on no account allow people to press on her loins ; also she must not use irregular efforts, for the fœtus does not yet present properly ; it often happens that midwives order the woman to use her strength while the fœtus is turning itself, when, behold, as soon as she uses one single effort, the position of the child is altered, and it becomes transverse or inverted, and it cannot then be born in its proper position. It is of great consequence that the woman do not use efforts too early, she must wait patiently till the child arrives at the mouth of the womb, then she may make one effort, and the child will be born ; this is the proper time for her to use her strength ; but if the true pains have not yet come on, and efforts be made too early, and if medicine also be taken to cause the child to descend, this is like giving the corn a pluck to help it to grow ; no possible benefit can result from so doing, but danger may ensue ; this is called destroying the conception. Sěě Yen Tze says, when the woman is about to be delivered, and she perceives within the body a turning or moving, she ought immediately to lie down quite straight, with the face looking upwards, until the fœtus has turned its body and comes down. When the

pains come on frequently, grasp the joints of the woman's middle finger, and if you feel a distinct pulsation in the first joint then let her go to the tub, and she will be immediately delivered.

The great work on midwifery, Zache says, generally speaking, all births have a settled time, and when this time has not arrived, the woman must on no account take medicine to force the labour; it also says, do not allow her to sit down on the grass too early, and especially do not permit the midwife to be meddling with her hand. The physician, Chootan Hae, says, to hasten the birth, only use the powder of citron peel, it is a very safe medicine, and has proved efficacious in numerous instances.

He also says, the most important thing is to produce new blood, and strengthen the spirits, and although she should have any other disorder, that can be attended to afterwards.

PRESCRIPTIONS.

Decoction of the Kung and Kevei, (Carminative).

Repeated trials, and constant success, have convinced me that this is truly a divine remedy:

Take of Tong Kevei, 1 tael.

„ Chuen Kung, 7 mace.

„ One slice of tortoise-shell, as large as the palm of the hand, which is to be boiled in vinegar, and then pulverized.

„ Woman's hair, the bulk of a hen's egg, which is to be dried on a tile over the fire, so as to preserve its qualities.

„ Water, 2 cups.

Mix all together, and boil down to one cup, and then let her drink the decoction, and in the time that a man can walk five *le* (one mile and a quarter) the delivery will take place; in abortion also it will cause expulsion of the foetus. Sě Zu says, when the bones of the pelvis do not open, it is because the female vigour is small; let her but take this medicine and the effect is miraculous. He also says, in a neighbouring village there was

a woman in labour, and the passage could not relax, so that after two days she was not delivered ; she took but one dose of this medicine and she was immediately delivered ; this prescription was then made known throughout the hamlet, and wherever it was used it was equally effective.

Powder of Citron Peel.

After the sixth or seventh month of pregnancy, if in consequence of slipping or stumbling, the womb be injured, or the foetus die in utero, or lockjaw come on, or there be severe pain or dizziness of the head, with great distress of mind, or if there be a sense of fulness at the epigastrium, and the blood rushes up to the heart, let her take this medicine, and, if the foetus be alive, all the symptoms will be relieved, and if the foetus be dead, it will immediately come away. In cases of transverse or inverted presentation, this mal-position will be rectified ; or if, after delivery, there should be abdominal pain or inflammation, or pain in the head ; or if blood have been lost, and it be necessary to produce new blood, this same remedy will certainly relieve all these disorders.

Take of Tong Kevei, 5 mace.

„ Chuen Kung, 3 mace.

„ Water, 7 cups.

„ Wine, 3 cups.

Mix them together and boil to seven cups.

Where the child is placed transversely or inverted, or when it dies in the womb, add of black herbs one hǒ, and having roasted them thoroughly, drop them while hot into the water, then add half a cup full of boy's urine boiled, and in a short time repeat the dose.

Digestive Powders.

Take of Tzang Sūh (a bitter herb) fried with rice water.

„ Huo Pǒ, fried with ginger juice.

„ Orange Peel, each 3 mace.

„ Fried Liquorice Root, 1 mace, 2 condoreens.

Mix all together.

The reviving or stimulant Decoction.

During the after-treatment, if the child should be sick, or any evil appears, which is not readily removed, or there be pain in the bowels, or any such disorder :

Take of Tong Kevei, 6 mace.

„ Chuen Kung, 4 mace.

„ Fried Ginger, 5 condoreens.

„ Almonds, 5 condoreens.

„ Fried Liquorice Root, 5 condoreens.

„ Water, one bowl.

„ Boy's urine one bowl.

Mix and boil all together, and drink the decoction thus prepared ; if the bad blood passes off, or the pain in the abdomen ceases, leave out the almonds ; let her take a few such doses as above, the remedy is a safe one and cannot be injurious.

Medicine for soothing the Womb.

Take of Hevoy ke cooked with Honey.

„ Too Chung cooked with Ginger Syrup.

„ China Root, of each 1 mace.

„ Hevoy kin, $1\frac{1}{2}$ mace.

„ Fresh Pih Sŭh, 5 condoreens.

„ Assafoetida, 1 mace.

„ Liquorice root, 5 condoreens.

„ Sŭh Twon, 3 condoreens.

When the abdomen feels full and swollen, add of Purple Soo and Orange Peel each eight condoreens. When the motions are red, add also,

Scones of Nar Plout.

Ground Ivy, each 1 mace.

Asafoetida a small quantity.

Glutinous rice, 100 single grains.

Wine two cups and a little water. Boil all together.

When there is pain in the abdomen, let the decoction be taken while it is hot, and just as it comes from the fire.

Silver and Flax Wine to soothe the Womb.

For regulating pregnancy, when the foetus moves about so much, that it appears as though it wished to come out, and the stomach is so much pained that the woman cannot bear it; or when great hæmorrhage proceeds from the womb.

Take Roots of Flax, 2 taels.

„ Fine Silver, 5 taels.

„ Wine, 1 bowl.

If you are in a place where you cannot get flax, you may take of coarse grass five taels, add water and boil.

Purple Wine.

For cases where, during pregnancy, there is severe pain in the loins, as if they were about to be rent open.

Take of Black Beans, two portions; wash them thoroughly.

„ White Wine, one large bowl.

Boil to seven parts, and let her drink them when the stomach is empty.

Decoction of Kevei for replenishing the Blood.

This greatly favours the production of blood, makes it thicker, and excites warmth of the body, as if by miracle.

Take of Hevoy ke, fried in Honey, 1 tael.

„ Tong Kevei, 3 mace.

„ Water, 2 bowls, boil to 1 bowl.

Let the whole be taken at one dose and it will be instantly effective, the proportions of this prescription must never be altered.

Heva To's Carminative Prescription.

After delivery, when the woman is troubled with wind, her mouth being shut, her arms bent, and her feet drawn up, and the corners of the mouth contracted; or if after delivery she becomes dizzy, and does not know what she is doing, and her limbs become stiff, she feels oppression about the epigastrium, has vomiting and diarrhœa, and appears as if she were about to die.

Take the heads of thorny mustard, after the removal of the roots, dry the plants before the fire, and pulverize them ; let each dose be three mace, mix this with boy's urine, and let her drink it ; if the mouth be fast shut it must be forced open, so as to pour the medicine down her throat ; but if the mouth cannot be opened, then do not pulverize the mustard, but boil it in the urine, and when the decoction be moderately cool, administer it by pouring it through the nose ; this remedy acts like a charm.

Decoction for relaxing the Blood Vessels.

To be used when there is little or no milk :

Take of fresh Hevoy ke, 1 tael.

„ Tong Kevei, 5 mace.

„ Pih Cha (a fragrant plant), 5 mace.

„ Pigs' feet, 1 pair.

Boil with water, and remove the oil from the surface of the decoction, then boil down so as to make one bowl, which being taken, let her sleep, lying on her face, and the milk will shortly be secreted ; but if not, repeat the dose ; this is a remedy that never fails under any circumstances. Immediately after delivery, when there is no secretion, she must not use the pigs' feet, but a little wine, which must be boiled with an equal quantity of water, and drunk. If she be robust, add three or four condoreens of the China rose, in order to cleanse the various passages.

Inestimable Prescription of the Camellia Japonica.

To be used in the twelve diseases occurring after delivery.

Take of Tong Kevei, Chuen Kung, and Sang Te, each a mace and half.

„ Leaves of the Water Tan, Fragrant Foo boiled in vinegar, Profit Mother Herbs, and the creeping Hoo Tzö, each a mace and half.

If the patient have taken cold, add of divine Linseed for removing colds, one mace.

If the blood be congested,

Add Woo Ling Che boiled in Vinegar,

„ Thorny Mustard, roasted black, each 1 mace.

If three or four days after delivery, fever should appear,

Add of Paou Keang, roasted black.

„ Ginnery,

„ Hevoy ke, each 1 mace.

If there be any disturbance or oppression about the heart,

Add Orange Peel,

„ Chih kō,

„ Sho Yin, each 1 mace.

If there has been much flooding,

Add Ground Ivy,

„ Black-hill Saffron,

„ Ton Pse, each 1 mace.

If she be troubled with cough,

Add Almonds,

„ Mulberry Bark,

„ Kee Kōng, each 1 mace.

If the circulation is torpid and the blood does not flow, and the abdomen be hard,

Add Rosa Sinensis,

„ Fruit of the Che,

„ Peach kernels, each one mace.

If the stomach or bowels be distended,

Add Pih sūh,

„ Fūh lin,

„ Tsong sūh,

„ Haw po,

„ Orange Peel,

„ Sha Yin,

„ Chě ko, each 1 mace.

If the mind be disturbed or agitated,

Add Fūh shin,

„ Yuen che, each 1 mace.

If the membranes do not come away,

Add Glauber's salts, 3 mace.

All these are to be boiled together, and then administered.

Diarrhœa in Children.

The song says, "When a child has a variety of disorders which result in diarrhœa, do not ask whether it be strong or weak, male or female. If the fever be so violent that the hair becomes dry, the passages, as the nose and mouth, are burned up, the skin and flesh parched, the limbs palsied, and the bowels constantly relaxed, then use the green moss powder. In the hundred diseases of children this remedy may ever be employed with advantage. Only let the green moss powder be dissolved in water and administered to the child, and it will soon be cured."

The divine Remedy for Infantile Marasmus.

This will also cure jaundice, pains in the bowels, and cases of worms in the intestines, and is wonderfully efficacious.

Take of Heung Hevoy, 3 mace.

„ Fragrant musk, $\frac{1}{2}$ a mace.

„ Ton Sang, 2 mace.

„ One scorpion, remove its legs, and then roast it.

„ Roasted silkworms' eggs, each 1 mace.

„ Powder of Cinnabar, 1 mace.

„ Broad beans, $\frac{1}{2}$ a mace.

Pounded in paper so as to remove the oil.

These are all to be weighed carefully, and then pulverized and made into pills the size of radish seeds, with shin keüh paste. One is to be taken, with a little soup, for a dose.

Che Yung, a priest of Hangchaw, invented this prescription, and thus saved the lives of multitudes of children.

Remedy for Weakness or Wasting in Children.

Take of Chin Wine,

„ Boy's urine, each one cup ; and having boiled them together

Add, Woman's Milk and White Honey, each one cup.

Boil all together till the mixture becomes thick.

When the sickness is very severe, increase the quantities, and after a few such doses the child will be perfectly cured.

Prescription for remedying the Descent of the Fleshy Thread that adheres after Delivery.

Sometimes, after delivery, the woman is troubled with the descent of a fleshy cord* or thread, about three or four cubits long, and on touching it the pain is so severe that the feeling is as if the heart and bowels were about to burst open ; this wholly arises from using too much effort, or from using efforts too long.

Take of old unscraped Ginger 3 callies, well burned.

„ Linseed, 2 callies.

Mix them thoroughly together, and bake them till they are dry, then take a piece of smooth silk, four or five cubits long, and fold it so as to make an oblong band, then taking the membranous, or fleshy cord, gently raise it, and having rolled it into three or four folds, push it into the vagina, then doubling the piece of silk, put the ginger into it, and apply it like a poultice ; when it becomes cold change it, and continue the application for a day and a night ; by this time, more than half of the cord will have been retracted, and in two days it will disappear entirely ; it must on no account be divided, for doing so would be highly injurious.

To guard the infant's navel from taking cold, the best remedies are horses' teeth and the Kun Yen prescription.

* It is impossible to say what this fleshy cord may be. Some Chinese surgeons, who were asked regarding it, said, it was not the umbilical cord, and very probably the above is merely an imperfect description of a solitary case attended by this unusual circumstance.

Take of dried almonds, $2\frac{1}{2}$ mace.

„ Borax $\frac{1}{2}$ a mace.

„ Cinnabar, 2 condoreens.

„ Flakes of Musk, 5 le.

All to be reduced to a fine powder.

When the child is born, and has been washed, then use this powder, by putting it on the eye of the navel, instead of alum only. Whenever you change the child's napkins you must also apply fresh powder. The remedy having been then applied, there is no fear of the infant ever taking cold in its navel.

The three following prescriptions form no part of the original work, but have been added by the person issuing the present edition.

Remedy for Burns in Children.

Take of Water Lilly, $1\frac{1}{2}$ mace.

„ Camphor, 1 condoreen.

Pulverize, and mix with oil, so as to form an ointment, to be applied to the part affected, which will then soon heal.

Remedy for Prolapsus Ani in Children in consequence of Dysentery.

Take a little dry fæces, *you must not use such as are found in the roads, but they should be from unhealthy persons*, pulverize it carefully, and mix it with rice and water; two doses will effect a perfect cure!!

Remedy for Discharges of Blood in Adults.

Abundance of cow's milk to be drunk, and this alone will be sufficient to cure the patient.

In the eighteenth year of Kea King (1814), and the sixth month, Chow Ping Han, the Han hoe magistrate of Canton, and a literary man, had an infant son, who, when he was a month old, became very much diseased in all parts of his body; the father seeing this, vowed to heaven that he would print and publish forty copies of this Manual of Midwifery, and, wonderful

to relate, the boy instantly became perfectly well, and enjoyed good health!!

SCALE OF WEIGHTS.

One Cally,	. . . . .	16 Taels.
One Tael,	. . . . .	10 Mace.
One Mace,	. . . . .	10 Condoreens.
One Condoreen,	. . . . .	10 Le.

The Cally is $1\frac{1}{3}$ lb. English avoirdupois.

The preceding translation was sent to me by my friend, Dr. Lockhart, as the first fruits of his investigation into Chinese medical literature. It reminds one very strongly of the earliest English authors, such as Raynalde, Culpepper, &c., without increasing our respect for the state of obstetrics in the Celestial Empire. I should add, that Dr. Lockhart was sent into China a few years ago by the London Missionary Society, in hopes that free access might be obtained to the inhabitants of that country, by first conferring on them the benefits of enlightened medical science. Since his arrival there, he has treated 3500 patients, and with great success; I hope to obtain a report of them soon for the Dublin Journal.

F. CHURCHILL.

ART. XII.—*Illustrations of Infantile Pathology.* By JAMES F. DUNCAN, A.M. M.B., Fellow of the College of Physicians, and Physician to the North Dublin Union Work House.

[Read at the Obstetrical Society.]

IN presenting the following cases to the notice of the Obstetrical Society, I think it right to state, that I consider it the duty of each member, however humble, to contribute, as he has opportunity, his proportion to the common stock of information possessed by the body; and although he may not be enabled to produce more than a faithful record of what occurs to him in

practice, yet this, if duly observed, and carefully reflected upon, may prove useful in various ways to himself and others. Under this impression, I have endeavoured to avail myself of the opportunities I enjoy as Physician to the North Dublin Workhouse, for the purpose of putting upon record such facts and observations as may, from time to time, occur to me ; and although I may not be able to lay much claim to novelty in the rehearsal, I hope, by a due selection, to make my statements sufficiently interesting. Before doing so, however, I may remark that the Workhouses in this city afford peculiar facilities for the study of infantile disease, both because there are always a large number of children domesticated within their walls from the first moment they see the light, and because there is therein afforded every opportunity of verifying or correcting, after death, the opinions entertained regarding their complaints during life. There is another advantage, too, I may be permitted to mention, which they have over ordinary dispensaries (the only institutions in this city where children of an early age are afforded medical relief), namely, that they are always accessible to his visits, so that he can see them as often as his judgment may consider necessary ; and even after they become convalescent from acute disease, he may continue to observe their subsequent condition, and trace the effects of previous illness on their after life.

The cases now presented to the Society seem to be sufficiently connected to warrant their forming a single group, and their recent occurrence naturally led me to consider them together. The first two are cases of croup, but present some peculiar features which throw an additional light upon the pathology of the disease.

CASE I.—William Greenless, a fine healthy infant, one and a-half years' old, had been under treatment for an attack of measles, at that time prevalent in the Workhouse, from the 22nd of September, which was the second day of the eruption. His illness commenced, as the epidemic usually did, with vomiting

and purging, sneezing and slight cough. As several cases of pneumonia had occurred, under similar circumstances, at that time, I was particularly careful in my examination of the child's chest, and was happy to find the lungs healthy, except a few slight bronchitic râles, and that they emitted a clear loud sound in percussion. I ordered the child an emetic of hippo wine, a warm bath, and a pectoral mixture containing a small quantity of nitre.

On the 23rd, the eruption was more out, but rather faded ; he slept constantly since last visit ; the bowels were still purged and the stools greenish, the cough was relieved, but the throat for the first time appeared hoarse ; the chest was again examined, and found in the same satisfactory state. As I thought the hoarseness was owing to some slight cold the child might have been exposed to in the ward, I did not attribute much importance to its occurrence, and merely ordered a piece of flannel to be worn on the neck. I repeated the emetic and warm bath, and as the purging seemed to continue longer than usual, I directed two grains of hyd. c. cretâ and one of Dover's powder to be taken three times daily.

On the 24th the eruption was of a darker colour, the hippo wine had vomited him freely, and the chest was relieved of the bronchial râles, the bowels were less purged, but the stools continued as before. He was constantly sleeping. As I had seen this a favourable symptom in other cases, I did not attribute the sleep in any measure to the powders he was taking, but directed them to be repeated every third hour.

On the morning of the 25th, when I visited the hospital at 8 o'clock, I was informed to my surprise that the child which I had left the previous day, as I thought convalescent, or at least in safety, was dead. The nurse told me that he took quinsy about eleven or twelve o'clock in the night ; it commenced with a hard dry cough, and then the throat became affected. She immediately administered an emetic and applied three leeches, which gave him some relief, but at two in the morning he was so much

worse, that the apothecary was sent for, and in about twenty minutes more, after some slight convulsions, he expired.

On dissection the lungs were found perfectly healthy, of the natural pale colour, soft and crepitant to the touch, the trachea and bronchi were pale and free from vascularity. The rima glottidis was quite impervious to air and light, and the larynx was lined with a thin, soft, reddish pellicle of lymph, which being removed exposed the mucous membrane in a state of high vascularity.

The brain merely exhibited some marks of general congestion.

CASE II.—Matthew Short, a fine healthy infant, eight months old, had been convalescent from measles for some days; his lungs were carefully examined, both during his illness as well as several times subsequently, in consequence of a slight cough remaining, which seemed to be passing into whooping cough, as he was observed to whoop occasionally at distant intervals; a couple of leeches were applied near the spine, and this symptom never returned, the child appeared doing well for several days, was lively and playful till the 12th of Oct., when I was informed by the nurse, that on the preceding evening, about two o'clock, he was seized with an obstruction in the windpipe, which nearly suffocated him, the chest at the same time remaining free; he was relieved by an emetic. I should have mentioned, that this child had been suffering from hoarseness since he had the measles, but in so slight a form that it did not attract my particular attention farther than that I ordered him some flannel to wear about the throat. In the morning the dyspnoea returned, the respiration was evidently croupy, the expiration free, while the inspiration was attended with that sound which is so characteristic of the disease. He was forthwith ordered two leeches to the external larynx, an emetic of hippo wine to be repeated at short intervals, a blister between the shoulders to be dressed with mercurial ointment, and powders containing one grain of calomel and one-fourth grain of hippo every hour.

In the evening, at nine o'clock, he was a good deal relieved, and was sleeping soundly ; his breathing had lost a good deal of the croupy character. He was directed to continue the powders and emetic wine. Oct. 13, he relapsed through the night, and was almost suffocated, but was relieved by the frequent repetition of emetics. This morning he was suffering from the dyspnoea ; the chest on examination seemed perfectly free from any pneumonic symptoms ; it emitted a loud clear sound on percussion, was free from crepitus ; but the difficulty of examination was increased from the loud hoarse and croupy sound emitted by the larynx ; the lips were pale, but not livid. His medicines were continued. In the course of the day he got much worse, was frequently gasping for breath for about three hours before his death, which took place at half past 10 o'clock, P. M., having been preceded for some time by convulsions.

At the autopsy made about fourteen hours after death, the lungs were found perfectly healthy ; they floated upon water ; the mucous membrane of the trachea and bronchi was pale ; the rima glottidis was completely closed and impervious to air and light. On slitting the larynx open, it was found filled with a brownish thick membrane, which could be easily detached with a pair of forceps, and left the membrane underneath of the same pale appearance as the rest of the trachea. There was very slight congestion of the brain.

In commenting upon these cases, perhaps nothing would strike an observer as more surprising than the suddenness with which the attack commenced ; and the extremely rapid progress that it made to a fatal termination ; and although this remarkable tendency is pointed out in all the systematic works that treat upon croup, I apprehend few cases will be met with which illustrate this melancholy feature of the disease more strikingly than those just mentioned. To me personally, from having visited them daily, watched the progress of their convalescence, and even stopped with delight to observe their innocent little pleasures, as I was attending other patients in the ward, the sad

intelligence came with peculiar suddenness and surprise ; and had I not taken considerable pains to investigate their complaints previously, I should have been apt to think that the unhappy termination was attributable to want of care upon my part.

The duration of the first case was but a few hours, that of the second something less than two days, reckoning from the period of apparent seizure, while Dr. Cheyne, in the *Cyclopædia of Practical Medicine*, states, that the average duration of the disease is three or four days. It is true, that both he and other writers have noticed the occurrence of death at an earlier period, but they do not assign any reason for the difference in the result. I am inclined to believe, that a satisfactory solution is afforded to the difficulty by the cases under review, in which there was a mechanical obstruction to the admission of air, in consequence of the disease being seated in the larynx. As this is the narrowest portion of the windpipe, the same amount of effusion, which would be of little moment, lower down where the trachea is comparatively wide, would here be sufficient to cause death by actual closure of the passage. In ordinary cases, where the larynx is unaffected, death, therefore, would occur at a later period.

But the important practical lesson, forced upon our notice by the cases just detailed, is the necessity of paying prompt attention to every case of hoarseness that occurs at this delicate age. To the superficial observer (as in both instances, I acknowledge, happened to myself) the affection may seem too slight to be made the subject of medical treatment, as it does not appear to interfere with the health or animation of the child, which continues to look as well, and to play as merrily as ever, but not so in reality ; the nature of the part attacked is such, and such is its structure, that before the disease has given sufficient warning of its approach its work is done, and medicine is unable to snatch the victim from destruction.

Nor does the second case lead us to suppose that these dan-

gers are less before than after the period of weaning, though that opinion is generally entertained, for I consider the more frequent occurrence of croup, in^d the second period of infantile life, is to be attributed to the circumstance of children being then more rashly exposed to cold, probably from an idea of their being then strong enough to bear it; perhaps, also, from their being left more in the charge of ignorant or inattentive nurses. At all events, under every circumstance, the utmost vigilance is requisite on the part of the medical attendant, both to detect and to treat disease in this early period. There is this peculiarity in infantile disease, that as the little sufferers have not yet learned the use of language, they can neither express their own sensations, nor comprehend the inquiries of the physician; and while habits of close observation are peculiarly necessary to him at all times, to enable him rightly to appreciate the severity and extent of disease even in adults, at this tender age they are the essential element of his character, the *sine quâ non* of his fitness for the office he holds. The help he is accustomed to receive from others, and which are here denied to him, must be compensated for by a greater exertion of his own acuteness, and fortunately, in consequence of the greater irritability of an infant's system, disease seldom exists in it for any time, without exhibiting traces of its presence in the simple and silent but sufficient language of attitude and expression.

In speaking of the treatment adopted in the second case I shall merely remark that I did not resort to general bleeding, both from the child's tender age (eight months), and because he had previously been weakened by leeches a few days before. Nor, indeed, am I disposed to think, that in cases where the disease is so purely local as it was here proved to be by the dissection, such a heroic remedy would prove generally eligible. Undoubtedly, in cases complicated with pneumonia, or even an extensive general bronchitis, it would be both desirable and necessary, but not at all so much so in a case only implicating the lining membrane of the larynx. My chief reliance, therefore,

was in emetics and in mercury. In the selection of an emetic, I preferred hippo wine, as being equally effectual, and more safe than tartarized antimony, which I had found last winter to depress unduly the infants I had to deal with in the Workhouse. Mercury, so much lauded in the treatment of this disease, I had recourse to, both because of its generally admitted power of checking or preventing the effusion of lymph in inflammation, and because I have experienced its great value in croup in other cases in which I tried it. I gave it accordingly in large and repeated doses, and without any unpleasant effect, except that it did not accomplish the purpose for which it was exhibited. It was also employed as a dressing to the abraded surface of a blister, a method which I have found, on several occasions, highly satisfactory, in children of a very early age, threatened with hydrocephalus, and who were by this means immediately relieved from convulsions which had continued for two or three days from fever, and even from strabismus and coma.

The appearances found on dissection are chiefly remarkable for exhibiting the local and limited nature of the disease, and the precise position which it occupies is worth attention, because I find that some authors, Craigie, for example, deny that the larynx is ever affected in croup, maintaining that wherever it so the disease is not croup, but diphtherite or merely laryngitis. In the case before us there certainly was no diphtherite present, because the mucous membrane of the mouth was perfectly pale and healthy, and I cannot understand the object of calling them cases of laryngitis, when they had all the symptoms, during life, of croup, for by saying that the larynx is never affected in croup, I presume he means to say that in children, when the larynx is affected, it does not present the symptoms of croup.

That croup may exist in various degrees of severity, and in connexion with other diseases, is freely admitted; nay, that it is more usually found complicated with pneumonia or bronchitis than in its simple form is probably true; but it is important to bear in mind that it is occasionally at least presented

to our notice in the form here described. That, in fact, the characteristic of croup is the effusion of lymph upon the mucous membrane of the larynx or trachea, and that death may occur without the disease having extended itself farther. Mr. Porter, in his admirable work upon the larynx, acknowledges that such cases do occur, but denies the possibility of distinguishing them from others. He says, "Can any man exactly draw a line of distinction between the varieties of croup, and say, that the inflammation in one case had commenced at the bronchial cells, and in another at the larynx?" Now, while I am free to admit that the diagnosis of these is attended with much difficulty, I must be pardoned if I say, that I think it is not impossible. A great part of the difficulty arises from the loud tracheal sound obscuring the actual condition of the respiration, and leaving the physician in considerable uncertainty, even after the most careful examination. But there is one evidence that is not liable to this objection, and that is what is afforded by percussion, for we may at once conclude that when a clear loud sound is elicited by percussion, the pulmonary structure is as yet free from any serious disease. And here I may remark, that I have been taught by continued observation, that we may be led into error by a superficial examination even of this sign, for in the young subject, unlike what takes place in the old, there may be considerable disease, and even pneumonia itself, while the lungs continue to yield a tolerably clear sound. But to the practised ear, which is much in the habit of percussing the infant's chest, this will cause no difficulty; for it can easily distinguish the almost tympanitic resonance of the healthy state from the more obscure result afforded by disease. All that is necessary for this purpose is, a little practice, aided by common attention; but it must be based upon the only legitimate foundation upon which auscultation can be established, the due comparison of the opposite conditions of health and disease. Percussion in childhood, like auscultation, yields an exaggerated result as compared with the adult, and indicates a state of parts still in a *puerile* condition.

Before closing these remarks, I may be permitted to draw attention to the propriety of resorting to tracheotomy, as a last resort in cases similar to those now reported. This operation, though often suggested, and even occasionally practised, seems to have now, by almost universal consent, fallen into disrepute as a remedy in cases of croup. I am not going to make light of the difficulties attending such an operation in a young infant, neither am I going to recommend its adoption in cases where no probability exists of its being performed with success, but I believe that were I to designate the cases presented to the Society, as instances of laryngitis and not of croup, the profession generally would be more disposed to sanction the employment of the remedy. I believe that the cases in which the operation has been generally attempted,* were either badly selected, or it was deferred till a period at which it was impossible to be of use. Cases are on record in which the operation was successfully performed even in very young children, where a state of parts precisely similar to those just recorded was produced, where, in fact, an artificial croup was developed by accident, e. g. in consequence of swallowing boiling water, and I can see no just ground to draw a distinction in the mode of treating them. But to justify our resorting to such a measure, two things are necessary to be borne in mind, more particularly as the disrepute into which tracheotomy has fallen is probably owing to their being neglected; the first, that an operation is absolutely necessary for the child's safety; the second, that the disease is free from any serious complication of pneumonia or bronchitis,

* I find in a late number of the Medical Press it is stated by M. Guersent at the Société de Médecine Pratique, that he had often performed the operation unsuccessfully, and that after death traces of pneumonia were discovered. M. Trousseau, however, had been more fortunate, having had nine recoveries out of one hundred operations. I would infer, that the difference in the result was owing to the different nature of the cases operated on. I have heard of one child at Berlin having been operated on three times, the first at three years old; he is now nine, and in perfect health.

a state of parts that ought to be considered rather the exception than the rule in this disease.

To the cases already detailed I shall, with the permission of the society, add another which has occurred subsequently, and which exhibits its complication with pneumonia of both lungs.

CASE III.—Pat. Brennan, a fine healthy infant, six months old, was convalescent after measles, from which he made a good recovery ; about a week before he was brought to me his mother had taken him out into the cold, when he was seized with pneumonia of both sides, particularly the right. On the 25th October his mother reported to me that he became hoarse on the preceding day, and during the night was nearly suffocated two or three times, but was relieved by emetics, when he threw up something cord-like, and got relief immediately. This morning the respiration was occasionally croupy, but lost this character after each fit of vomiting ; the dulness at the base of lungs posteriorly was less than on the preceding day ; no crepitus audible in this situation ; but the respiration was feeble, as if the lungs did not expand fully. The eyes were suffused with the efforts at breathing, but the child did not exhibit much anxiety in his looks. He had been taking tartarized antimony, but the quantity was now increased to four grains in a two ounce pectoral mixture, of which a dessert spoonful was to be given frequently, and the child to be put into a warm bath. At one o'clock I found that he was nearly suffocated when in the bath, and that the other symptoms remained as before, and therefore directed a steady perseverance in the use of the tartar emetic mixture, and a small blister to be applied between the shoulders till it reddened the surface, when it was to be removed and dressed with mercurial ointment.

The next day, October 26, I found that he was very bad about eleven o'clock the preceding night, but got relief from free vomiting. The respiration was still croupy, but less so than the previous day, and only at intervals. Inspiration was rough and hoarse ; expiration short and free. The blister reddened the

skin in about three hours, and the dressing subsequently vesicated. The dulness continued at base of both lungs posteriorly, and a soft crepitus was audible in this situation to-day. Percussion was clear over upper and anterior parts of both lungs, and respiration was vesicular there. The child seemed a good deal weakened, but free from much suffering, except from the blister. He coughed a good deal, rather more than previously, but slept somewhat last night; and took the breast for the first time these two days this morning. The same mixture to be continued.

Two o'clock, P. M., after awaking out of sleep was quite cold, and seemed almost dead; is now however better, seems easy in his breathing, and free from anxiety. The mixture to be omitted, and one containing decoction of senega and carbonate of ammonia to be substituted. Wine whey to be given him occasionally.

Nine o'clock, took convulsions shortly after the last visit, in which he worked for some time, and died about eight o'clock.

Post Mortem.—On dissection, the inferior lobes of each lung was found solidified; on being cut into they exhibited the red hepatization of pneumonia. The upper lobes upon both sides were perfectly pale, soft, and crepitating to the touch. On opening into the trachæa, the mucous membrane was pale, except near the bifurcation, where it became a little vascular, a state which extended, in a slight degree however, into the divisions of the bronchi. The rima glottidis in this case was quite pervious; but the internal surface of the larynx exhibited traces of inflammation and false membrane; for on removing with the scalpel the thin mucus which covered it, filaments of lymph could be seen attached to the still red and vascular surface of the mucous membrane.

The only observations I shall make on this case are, that I consider death is rightly to be attributed to the severity of the pneumonic complication, and not to the disease in the larynx. The latter had either not risen to any great extent, or had been alleviated by the treatment adopted; but the former, in conse-

quence of the mother's neglect in not bringing the child for advice in time, had been suffered to reach such a state of severity as ultimately to resist the measures usually successful in such cases. It is also worthy of remark, that while the lesions referrible to croup were in this case slight and not well marked, yet, such as they were, they were wholly confined to the larynx, and did not extend in any measure to the trachea.

The following case I think sufficiently interesting to be annexed to those already detailed, both because of its rarity, and because the precise lesion discovered after death had not been suspected during life; occurring about the same time with another which it greatly resembled, and in which there was found a mechanical impediment to the respiration in a quantity of thick mucus, which the infant was unable to expectorate, I was naturally led to expect to find the obstruction in the cavity of the air tubes, and not external to them.

CASE IV.—Mary Ann Bernard, ten weeks' old, had been suffering for ten days before her death, from a very severe chest affection; she had a cough, attended with a loud mucous râle, which was audible to the naked ear at some distance, and was unattended by expectoration. She laboured under urgent dyspnoea, marked by a livid colour of the lips, and an incessant panting for breath; her sufferings were extreme, and her little features exhibited the deepest anxiety. Though of a very tender age she seemed conscious of her danger, and used to look in the most imploring manner, first at one, and then another of the by-standers, as if to supplicate relief from their assistance; a symptom which struck the attendants very forcibly at the time, though I could not properly explain it, was her continually putting her hand to her mouth, as if to extricate something that was the cause of her sufferings, and which I concluded to be the viscid phlegm she was unable to expectorate; for, although the strongest nauseating and emetic medicines were administered, that could safely be ordered for so young a child, none of them, during the whole course of the illness, took the

slightest effect. The chest generally sounded dull on percussion, but in particular, the region of the right scapula was nearly femoral; the respiration was marked by loud mucous crepitus throughout; neither the voice nor the breathing was at any time croupy. After lingering several days in this state, it fell asleep so quietly that neither its mother, nor the nurse, were aware of its departure until some time afterwards.

The dissection revealed the whole cause of this anomaly in the symptoms. On opening the sternum, the lungs did not collapse, the anterior margins of both were pale, but the other lobes were completely solidified by pneumonia, and of a deep reddish colour. Very minute but distinct tubercles were scattered in immense numbers on the surface, and through the substance of both lungs, but were principally collected in a spot corresponding to the region of the right scapula, where they were larger and more matured, but none of them seemed to have undergone softening. The bronchial glands which lie between the bifurcation were also enlarged, and tubercular, but those which stretch upwards, along the side of the trachea to the neck, on the right side were enlarged to an enormous size, and filled with scrofulous matter. This mass, which was of considerable dimensions, seems to have exerted its principal pressure on the right lung, which was displaced to a considerable extent in this situation, for had it been otherwise, suffocation must have occurred at a much earlier period.

It is remarkable, that such a tumour should have been developed within the thorax, without having, to some extent, appeared externally, or at least been attended by scrofulous enlargement of some of the other glands in the neck, by which we might have been led to suspect its existence; but no, not the least difference in size or shape could be detected upon either side, and the limited dimensions of an infant's chest are too narrow to admit of our attempting to detect such an occurrence in the mode usually practised in an adult. There was, it is true, a remarkably greater degree of dulness on percussion over the

right scapular space, but this is so common a sign in pneumonia, that it did not at the time attract my attention as being at all remarkable. In the many dissections I have made of scrofulous children, I never met these glands enlarged to anything like the same extent; indeed I do not remember to have ever seen the glands in this precise situation enlarged at all, although it is common enough to find those in the bifurcation of the trachea of a very large size.

I think it right to draw attention to the fact, that the respiration was never croupy during the course of the disease, a symptom that some physiologists would anticipate from the existence and position of the tumour; for, I think there is good reason to believe that in all those cases where the natural sound of respiration is altered, there is some change produced in the trachæa, either internally or from without; thus in croup there is the false membrane lining the passage; in aneurism, and other intra-thoracic tumours, the tube is flattened from the pressure they produce, in consequence of the unyielding nature of the walls of the cavity, and in whooping cough there is, I believe, some enlargement of the bronchial glands generally present, to which the phenomenon is attributable; at least this opinion is maintained by some writers of eminence. But although the case before us seems to be an exception to this rule, it is not necessarily a contradiction, for, in the first place, it remains to be shown whether a lateral pressure will have the same effect as that which bears upon the anterior or posterior aspect of the tube, and secondly, I think that we are not justified in saying, that there was any pressure exerted upon the tube at all in this case, because the upper lobe of the right lung was evidently displaced to make room for the morbid growth. Similarly, in a remarkable case of aneurism which I lately met with, and which occupied the anterior mediastinum to an enormous extent, there was neither dysphagia nor alteration of the voice, for this simple reason, that the aneurism had absorbed the greater

part of the sternum, and so made accommodation for itself without pressing on the deeper seated parts.

The dissection is further important from the light it throws upon the simultaneous development of tubercular and pneumonic inflammation. The *post mortem* appearances in the case before us, as well as in many others I met with last winter, do not authorize us to consider either condition as consecutive upon the other, for the manner in which they mutually co-existed would convince an experienced pathologist at a glance, that such was not the real course of the disease, independently of the still stronger argument deducible from the extreme rapidity with which it proved fatal. The tubercles, though numerous, were very minute, evidently in the first stage of their development, and were scattered at considerable distances in a lung presenting all the characteristics of healthy and unmixed pneumonia. It seemed as if the vitality of the constitution in this infant was so low as to need only the first spark of any acute disease to light up the melancholy fire of a lingering consumption ; so that if it should escape the effects of the evil that immediately threatened, it was sure to fall beneath the slower but more certain destruction of that which remained. I need not say how deplorable is the duty of the physician who is called upon to manage such a case as that here described, many of which I had the misfortune to encounter last winter ; but which, I am happy to say, have latterly almost disappeared before the alterations that my colleague and I have succeeded in inducing the Board of Guardians to adopt for the management of this class of inmates in the Workhouse : they are now less crowded at night ; they are warmly clad, and they are now permitted to take exercise in an extensive garden during the sunny hours of the day ; and although some measures yet remain to be effected, I have no doubt that in a short time everything we desire upon this head will be fully carried out. This is the only case I have met for some time, presenting together acute tubercles and



Geo. Du.oyer Lith.

Printed at 41

Case referred to in Dr Graves's Paper

Hodges & Smith 21 College Green.

acute pneumonia ; a circumstance the more remarkable, because both mother and infant, owing to a silly distinction, were not placed along with the other nurses, in the department assigned to them, but with the inmates of the old House of Industry, where they did not enjoy the advantages afforded to those otherwise disposed of ; and I consider this fact in itself a striking evidence of the improvement that has been effected in the management of our infant children, and of the importance of paying attention to those measures of general health whose tendency is rather the prevention than the cure of disease.

ART. XIII.—*Observations on the Nature and Treatment of Various Diseases*. By ROBERT J. GRAVES, M.D.

[Continued from Vol. XVIII.. p 260.]

I. REMARKABLE AND UNEXPECTED RECOVERY FROM LARGE ABSCESSSES OF THE LUNGS.

THOUGH the introduction of the stethoscope has been of the greatest utility in the investigation of pulmonary complaints, both as regards their prognosis and their treatment, it must be confessed that, in many instances, practitioners have been induced unduly to rely upon the indications of disease which this instrument affords, and consequently have seen their prognosis fail. The following remarkable cases afford abundant proof, that patients may recover, contrary to the usual interpretation of the most significant and decisive stethoscopic symptoms, and therefore seem to merit publication, in order to warn practitioners from relying too exclusively upon physical phenomena, and too hastily concluding that pulmonary lesions, however extensive, thus indicated, must necessarily prove fatal. These cases, too, shew that vast abscesses may be formed in the lungs, and yet the patient recover ; and likewise, that real circumscribed abscess occurs more frequently in the pulmonary tissue

than Laennec allowed, or his followers seem to believe. It is true, indeed, that where suppuration takes place in the lung, nature effects it in a manner either calculated to afford the readiest exit for the matter so formed, or best suited to promote its absorption.

This object, from the extent of the parenchymatous structure of these organs, and its relation to the air cells and minute bronchial tubes, is most easily effected, by so disposing of the purulent fluid, resulting from inflammation, that it can, on the one hand, be with facility eliminated through the bronchial tubes, or on the other absorbed in the texture of the lung itself. In other organs and other parts, a similar facility for mechanical elimination does not exist, and consequently the easiest step which nature can take is, to collect the puriform fluid, within the parietes of a circumscribed abscess, which may work its way outwards for the purposes of discharge. From this view it appears, that in other parts, circumscribed abscess is the ordinary means of evacuation provided by nature, and diffuse suppuration the exception; while in the lungs the reverse obtains, diffuse suppuration being the ordinary rule, and circumscribed abscess the exception. The rationale here exposed has been well explained by Dr. Stokes, in his admirable treatise on diseases of the lungs, but at the time he wrote, neither he nor I were aware that large abscesses occur so frequently in the lungs, or are so often recovered from, as subsequent observation has shown to occur.

CASE I.—In the year 1837, I was called to visit a boy at Rathmines, who presented the following symptoms: he had for many weeks been affected with cough, dyspnoea, and bloody expectoration, attended by fever, emaciation, and colliquative sweats; and when I saw him his pulse was extremely quick, his respiration hurried and difficult, while his whole appearance expressed danger of almost immediate dissolution.

The right side of his chest, but more particularly the superior part below the clavicle, was dull on percussion, and

every time he coughed, matter could be heard gurgling in a vast cavity in the upper part of the lung; the gargouillement was so plain as not to require the application of the stethoscope, and indeed it was almost impossible for even the most zealous cultivator of science to examine the physical phenomena very closely, for every time he coughed he threw up large quantities of purulent matter, mixed with blood of a stench so insufferable that my stomach was nauseated, and I could not remain more than a few minutes in his room, even the most distant parts of which were pervaded by this abominable foetor. I at once pronounced the case hopeless, and advised merely palliative treatment. In a few months afterwards, I was surprised to see the same boy apparently recovered, assisting in carrying on his father's business, that of a tavern-keeper. He has since grown up and become a tolerably strong young man, healthy in every respect, except a certain degree of shortness of breath, which he feels when forced to make any considerable exertion. A manifest flattening is still evident beneath the right clavicle.

CASE II.—In the summer of 1839, Sir Philip Crampton brought me to the Shelbourne Hotel, to see a boy about twelve years of age, who had been at school in France, and had caught a cold in the preceding spring, under the effects of which he had ever since laboured. The disease had been but little attended to, and no appropriate treatment employed until emaciation had considerably advanced, and his constitution was evidently sinking under the inroad of the malady. His father was then written to, and he proceeded in haste to the school, where he found that an eminent physician had pronounced the boy's case hopeless, and had declared that he was in the last stage of phthisis. He was brought to Ireland by short stages, and though his removal was accomplished with all due care and circumspection, yet his parent was more than once in a state of well-founded apprehension that he would expire on the road. The disease in this case had been *so long in forming, had advanced so steadily*, and had attained to such a degree of inten-

sity, that little or no hope remained of his recovery. The physical phenomena and the constitutional affection were much the same as these detailed in the preceding case, with the exception that the expectorated pus was neither so abundant nor so foetid. In both this case and the preceding, it is to be remarked, that only one lung was affected. His parents were anxious to remove him to the country, and Sir Philip Crampton and I felt much hesitation in sanctioning this step, as the danger of his immediate dissolution was so imminent. His friends, aware of this danger, nevertheless executed their intention; and about five months afterwards I was astonished to learn that the boy had perfectly recovered, and was then engaged in frequently enjoying the diversion of hunting in the County Tipperary.

In both these young persons, the history of the disease, and its unexpected termination, prove that they were affected with chronic pneumonia, ending in the formation of vast abscesses in the upper portion of the lung, which brought both patients into a state of the greatest jeopardy, but finally yielded to the curative powers of nature.

I do not see how, in either, a physician was to distinguish them from tubercular abscesses. Had the disease in either been more acute the diagnosis might have been possible; but, in both, its progress was at first insidious, occupying many months previous to the formation of the cavities, and accompanied by gradually increasing constitutional symptoms and hectic fever. The mere freedom of one lung from disease does not constitute a certain means of diagnosis, for the same not unfrequently obtains in true tubercular phthisis. In such cases, it is probable, that the microscopical examination of the expectorated fluid would have thrown important light on the subject, and have revealed the true nature of the disease, but it is only lately that investigation has been directed to this promising field of inquiry, on which Dr. Watts has in this Journal made several excellent remarks.

CASE III.—Early in the Spring of 1841, Dr. Brereton brought me to see, at Sandford, a young boy about fourteen or fifteen years of age, who a fortnight before had been attacked with symptoms of pleuro-pneumonia, intense pain in the side, and cough of a very harassing character ; he had also expectorated considerable quantities of the characteristic sputa, tinged of a prune juice colour. The constitutional symptoms had all along been very severe, and together with the local inflammation, had not yielded to a very active and judicious treatment. For about ten days after my first visit, matters went on from bad to worse, and at the end of that time, his pulse was about 140 ; dyspnœa excessive ; uneasiness, jactitation, and restlessness ; constantly urgent cough, both night and day, so that his case appeared utterly hopeless, and his death was momentarily expected. The pneumonia occupied nearly the whole of the right lung, and rendered that side almost every where dull ; and during the first periods of the disease, crepitus had been extensively present. While matters thus threatened a speedy and unfavourable termination, he was seized at night with intense difficulty of breathing, anxiety and pain in his side, and seemed to be moribund. With a sudden effort, however, he succeeded in expectorating a very large quantity of purulent matter, and immediately obtained comparative relief. A similar struggle took place on the following night, and with a similar result, and when I saw him the next morning, I found him in some respects manifestly relieved, but still labouring under great debility, considerable difficulty of breathing, and fever. On examining the right side of chest, the whole anterior portion, from immediately below the clavicle downwards, as far as the bottom of the lung, was found to be morbidly resonant on percussion ; a change of a most striking nature, for these parts had been before quite dull. This side of the lung was now evidently dilated, and the stethoscope detected a loud and well-marked metallic tinkling, whenever he coughed or spoke. The detection of this phenomenon rendered

it certain that a vast abscess existed in the lung, communicating certainly on the one hand with the bronchial tubes, and not improbably on the other with the pleural cavity ; a view of the subject which, in my mind, rendered the case hopeless, and I pronounced it to be so. For a fortnight or longer, he had occasional returns of sudden purulent expectoration, each time, however, less in quantity, and followed by more marked relief of the constitutional symptoms, and about six weeks from the occurrence of the first expectoration of matter, his convalescence had far advanced, and he is now strong and healthy.

The following cases occurred in the practice of my distinguished colleague, Dr. Stokes, who has, with his usual kindness, permitted me to publish them.

CASE IV.—Mr. H., a gentleman aged about 22, was attacked with pain in the side, cough, and fever, and in a short time, with very copious purulent expectoration. Soon after this, the signs of extensive abscess made their appearance in the antero-superior and lateral posterior of the lung. The patient was then considered to labour under tubercular caverns to a great extent.

Shortly after I saw him, when he presented the following symptoms: the whole antero-superior, lateral, and posterior upper part of the left lung sounded extremely dull ; perfectly distinct cavernous breathing, with large gurgling and pectoriloquy, were heard from second rib downwards to the mamma, and the same phenomena were audible along the fold of the pectoral muscle, from the axilla to seventh rib. The expectoration was copious, muco-puriform, but not foetid, and the pulse full, regular, and under 90.

The treatment adopted was palliative ; the pulse soon became natural ; all hectic fever ceased ; the dulness of sound on percussion gradually diminished, and the patient in the course of some months was perfectly restored to health, all the signs of caverns having completely disappeared.

CASE V.—A child, aged 12 years, was attacked with measles, in the course of which, severe pulmonary symptoms

set in ; the measles having subsided, the pulse continued quick, skin hot, and breathing hurried ; in about ten days, the patient commenced to expectorate a purulent matter of an offensive character. The foetor of expectoration continued to increase.

I saw the child the third week after the disappearance of measles. The expectoration was copious, of an ash-grey colour, and of a horrible foetor ; in fact, the entire apartment was tainted by the smell ; the left lung presented nothing abnormal, nor did the upper lobe of right ; but the whole region of the lower lobe gave a perfectly dull sound on percussion ; loud gurgling cavernous respiration, almost metallic, with a painfully distinct pectoriloquism.

The patient was ordered a milk diet, tonic medicines, and country air, and recovered perfectly well in the course of a few weeks.

CASE VI.—Mr. D., aged about 25, high shouldered, and with a remarkable stoop, was attacked with cough in the autumn of 1839. His pulse became quick ; he lost flesh rapidly, and presented the usual constitutional symptoms of phthisis, in an early stage. Within a few weeks of the invasion of the disease, Mr. D. began to expectorate from half an ounce to an ounce daily, of a sanious purulent matter, having the colour of urine, but not offensive. He soon after came to town ; the right clavicle was dull on percussion, the vesicular murmur feeble as far as the third rib ; above the clavicle most distinct gargouillement existed, and the same could be heard in the acromial region, particularly when he coughed.

Soon after this the pulse became quiet, and the expectoration, though still preserving the above character, diminished in quantity. The patient went to the Cove of Cork, where he remained for the greater part of the winter season. He returned in spring, having become very fat, and without the slightest symptom or physical sign of any pulmonary disease.

I could add several similar instances of pneumonic abscesses to those already mentioned, but they seem amply sufficient to prove that the disease is of much more frequent occurrence than is supposed, and is more frequently curable than the serious nature of the lesion would lead us to anticipate.

Some may think that the duration and previous history of the disease may serve to distinguish simple from tubercular abscess of the lungs, but a more accurate examination of facts will shew that no reliance is to be placed upon either as a means of diagnosis, for, on the one hand, tubercular abscess sometimes forms in the course of a few weeks from the apparent commencement of phthisis; and on the other, simple pulmonary abscess is often preceded by inflammation of many months' duration, and the origin and progress of the symptoms are, as in Case II., quite identical with those of phthisis.

It was my intention to have added some observations upon several remarkable cases of phthisis which have occurred in my own practice, and the practice of Dr. Stokes, and in which the patients recovered either temporarily or permanently in a manner quite unforeseen and unexpected. In some recovery took place after the occurrence of abundant tubercular deposition and crepitus, and in others, after the formation of tubercular cavities.

When the disease was produced by the operation of accidental causes in constitutions apparently sound, the recovery was not so surprising; but we have witnessed recovery in many of a phthisical constitution, and several members of whose families had previously fallen victims to consumption.

Facts such as these ought to prevent the practitioner from placing too great reliance upon stethoscopic examinations, as a positive means of prognosis; for it may be looked upon as established, that phthisis, like most other diseases, *does not always necessarily progress to a fatal termination*. With this exception I fully concur in the opinion of the Editor of the Medi-

cal Gazette, who, in the Number of November 12, expresses himself in the following manner :

“ It accords, we are bold to say, with the experience of every practitioner who has watched even a few cases of phthisis to their termination, when we remark, that the march of the disease, its disposition to assume a slow or a rapid course to its fatal issue, can never be predicted from the most precise acquaintance with the structural changes that have occurred. And what is still more important to notice, the constitutional effects do not bear any intelligible relation, in severity, to the amount of destruction of the organ in which the disease is situated. These facts show impressively, without stating any others, how much requires to be ascertained, independently of measuring out, with nice accuracy, the extent of morbid changes in the particular viscus considered as the seat of the disease, before we can have any correct notion of the nature of the agent, whose destroying, and, at present, irresistible influence, we vainly endeavour to combat in our practice.”

II. ALBUMINARIA.—BRIGHT’S DISEASE OF THE KIDNEY, OR ALBUMINOUS NEPHRITIS.

It appears very doubtful whether the pathology of this disease, as laid down by Bright, Christison, Rayer, and other distinguished physicians, will be found consistent with the cases which daily occur in practice. The latest and most elaborate treatise which has appeared upon the subject is from the pen of the celebrated Rayer, who has brought forward a great number of facts, but appears to me not in every instance to have been guided by logical precision in his inductions. Without questioning the accuracy of his observations, I feel myself called upon to protest against several of his conclusions, and cannot help feeling that his treatise exhibits internal evidence of inconsistency. The whole scope and object of his work is to account for certain symptoms, by shewing that they are caused by a morbid change in the structure of the kidneys, which he terms albuminous nephritis. The investigations of the morbid ana-

tomist, when legitimately pursued, lead to positive facts, not liable to be misinterpreted or confused, and which ought, in every instance, to be studied of and for themselves. The results of such investigations should be positive and palpable, for in order to estimate the real nature of the changes observed in any organ, an observation is worth nothing, unless what we see in the dead body distinctly discloses the nature of these changes.

But it seems to me that morbid anatomy will become of very questionable utility, if we permit ourselves to interpret the appearances observed in any organ, not by considering the actual changes it has undergone, as proved by dissection, but by a reference to the symptoms during life. Such a mode of proceeding must necessarily lead us from the true object of morbid anatomy, inverting the hitherto received method of that science, making us explain *structural changes by symptoms, and not symptoms by structural changes.*

That Rayer has fallen into this inverted and illogical method is evident, from the following statement made by himself:

“There are several striking analogies between simple nephritis and albuminous nephritis. Both are alike produced by the impression of cold and moisture. In the acute stage, with the exception of pus (which is exceedingly rarely, if ever, met with in the albuminous disease), they have every thing in common, the injection of the parenchyma of the kidneys, the increase of their bulk, the yellow discoloration of their substance, &c. In the chronic stage, when this is far advanced, the lesions are so similar, that without various circumstances drawn from the course of the diseases, from the presence or absence of dropsical effusion, and of albumen in the urine, it would be impossible to distinguish the one from the other.”

From another passage it appears to me, that an inference very different from that Rayer draws may very legitimately be induced. The passage is as follows:

“But, on the other hand, some strong points of dissimilarity

separate the two morbid states ; and one of the most striking of these is, without doubt, the marked influence which diseases of the urethra, bladder, prostate gland, ureter, and pelvis of the kidney, have, on the development of simple nephritis, while they seem to exert little or none on that of the albuminous kind."

Now, from these passages combined, it appears that the knife of the anatomist reveals nothing absolutely distinctive between common and albuminous nephritis, and consequently we may be permitted to doubt whether any real difference actually subsists between them, nay it seems almost positive, and established by Rayer's confession in the second passage, that the alleged abnormal condition of the kidneys is entirely unconnected with the supposed attendant alteration in the urine, for his confession is very remarkable, that where causes, merely local, induce this particular change of renal structure, that change is unaccompanied by the alteration in the urine. All the rules of sound logic, therefore, would lead us to suspect that when such changes in the urine do occur, they arise from some other cause than the renal disorganization. This suspicion is confirmed by the fact, that Bright and his followers have, as I have observed on a former occasion, accounted for changes in the urine, which are nearly identical in the acute and chronic albuminaria, by lesions of the kidney widely different from each other.

In acute albuminaria the general characters of the urine are not much changed, but it is loaded with albumen, occasionally mixed with the colouring particles of the blood, while in chronic albuminaria the albuminous admixture still continues, but the urine is diminished in specific gravity, and its urea and salts altered in quantity. In both, however, the leading characteristic change in the urine is the presence of albumen ; this alteration is alleged to be permanent through the disease, and yet when we accurately examine the described alterations which the kidney undergoes, from the commencement to the end of

the malady, they are so strikingly different from each other, that it is extremely difficult, if not impossible, to assign the same particular alteration of the secreted fluid to structural changes in the secreting organ, so different, nay, so opposed to each other. Thus, M. Rayer describes six forms of structural changes.

First Form.—The size and weight of the kidneys are considerably increased, from four ounces, their ordinary weight, to eight or even twelve ounces ; their consistence is greater, but is not indurated ; their surface presents a morbid red hue, and appears spotted over with a number of small red points, of a deeper colour than the rest of the organs. On making an incision into the kidney, we find that increase of bulk is owing to tumefaction of its cortical substance, which exhibits numerous red spots similar to those visible on the surface, and which, according to Rayer's researches, correspond with the glands of Malpighi highly injected with blood. The tubular substance of the kidney is of a duller red, and its striæ are less apparent than in the healthy condition. The mucous membrane of its pelvis and calices is sometimes injected, and exhibits vascular arborizations on its surface.

The sixth Form.—This corresponds with the third variety described by Dr. Bright. The diseased organ is sometimes longer, but often smaller than in health ; it is hard, and more or less irregular or tuberculated. We observe few, or perhaps none at all, of the milky spots or granulations on the surface of the affected kidney ; but a certain number is always found, when an incision is made into the cortical substance. The surface of the kidney is indurated, corrugated, and mamillated ; but, although sprinkled over perhaps with minute asperities, it does not exhibit the genuine granulations of Bright. *In some cases it must be confessed, that the anatomical forms of the disease are so closely alike to those observed after simple chronic nephritis, that it would be scarcely possible to point out the distinction between them if we did not take into account the*

phenomena present during the life of the patient!!! In this advanced stage of the disease the investing membrane of the kidneys is almost always thickened, at least in several points, and strongly adherent.

Now any one who carefully examines kidneys affected with structural changes so different, and in every physical quality of their tissue so opposed, will feel great difficulty in believing that one and the same effect can be produced by both on the renal secretion, viz., the appearance of albumen in the urine.

At present I have not time to assign my reasons for dissenting from M. Rayer in several of the propositions he lays down in the course of his work; but one assertion of his is too manifestly inconsistent with the facts to allow it to pass unnoticed. Endeavouring to establish a means of diagnosis between dropsy caused by disease of the heart and that arising from albuminous nephritis, he says, that the dropsical effusion caused by disease of the heart usually commences in the lower extremities, and extends upwards, whereas that arising from a lesion of the kidneys is often first perceived in the face. I have no hesitation in asserting from the result of my own observations, corroborated by that of Surgeon Adams, and borne out by the testimony of Corvisart, that when disease of the heart occasions dropsy, the most usual site of the first anasarcaous swelling is the face, neck, and upper extremities. But the doctrine of Rayer, thus liable to a valid objection, deduced from general reasoning, will not stand the test of facts, for the whole basis of his theory falls to the ground, if, in a single instance, we find the structure of the kidneys altered remarkably in the way he describes, in a patient whose urine during life exhibited none of the characters that he assigns to the disease. Cases of this nature I have already described, and such have been observed by others; but the following, which lately occurred in the Meath Hospital, is too remarkable not to be recorded, for it exhibited albuminous nephritis, or the structural alteration so called, in an extreme degree, and yet the urine was natural,

or, at all events, totally destitute of any albuminous admixture.

A man named Connell, æt. 50, was admitted in the month of June, 1841, into the Meath Hospital, labouring under morbus cordis and phthisis, accompanied with ascites and anasarca of the legs. We shall recur to the morbus cordis in another part of this paper, when speaking of the subject of bruit de soufflet. In this case, the urine was examined at six different times between the period of his admission and that of his death, which occurred about a month after; and on no occasion was the slightest trace of albumen detected, yet at the *post mortem* examination we found the kidneys in the following condition: "the right kidney was of its natural size; it was pale, and its component parts seemed mingled into one structure, of a pale granular appearance; the left kidney was exceedingly small, and was contracted into an hour-glass shape in the middle. It was hard, and its proper capsule came off with the greatest ease, exhibiting a rough, irregular, and nodulated surface, a section of which displayed an excellent example of what is termed Bright's kidney in the last stage." The above description is taken from the Case Book of my clinical clerk. At the first meeting of the Pathological Society for this session, I exhibited those kidneys; and at the same meeting my friend, Dr. Cathcart Lees, showed the kidneys of a child of a scrofulous habit, whose urine had been highly albuminous. The kidneys were in every respect healthy.

While one of the preceding cases proves that we may have Bright's kidneys without albuminous urine, the other shows that we may have albuminous urine without Bright's kidney, facts which, coupled together, militate strongly against the hypothesis, that the change in the structure of the kidney is connected with the appearance of albumen in the urine. But the discussion of this subject is important not only in a theoretical, but also in a practical point of view. Dr. Bright, in p. 70, vol. i. of his "Medical Cases," lays down the doctrine, that in cases

of dropsy, the presence of albumen in the urine ought to deter us from the use of mercury, an opinion which is opposed to my experience ; for I have treated several such cases successfully with mercury, and, amongst others, I may allude to that of Staff-Surgeon Finney, and to the case of Lindsey, a patient lately in the Meath Hospital.

III. ON THE PROGNOSIS TO BE DERIVED FROM AFFECTIONS OF THE PORTIO DURA OF THE SEVENTH PAIR OF NERVES.

Sir Charles Bell and Herbert Mayo were the first who distinctly enumerated the symptoms attendant on paralysis of the portio dura, and drew the attention of medical men to the fact, that this paralysis of the face, now popularly termed “ Bell’s paralysis,” may often exist independent of cerebral disease ; and, consequently, practitioners in general consider this affection as dependent upon some impression made upon the nerve itself, or its extremities, and unattended with danger. This view of the subject is, generally speaking, correct, but still it is liable to the following important exceptions : I have seen two cases of seizure, evidently apoplectic, in which the only paralysis that followed the seizure was seated in the muscles supplied by the portio dura. This paralysis yielded, in both patients, in the course of ten days or a fortnight, to appropriate general treatment, with a succession of small blisters applied behind the ear, over the orbit, and to the cheek. It is difficult to conceive how any cerebral affection can give rise to a paralysis limited to a part supplied by a single portion of the nervous system ; but still such an occurrence occasionally takes place, not only in the part specified, but in the tongue and in the upper extremity. Nor is this isolation of the paralytic affection in such cases always decisive of a favourable termination ; for usually, in the progress of time, another apoplectic seizure occurs, giving rise to general hemiplegia ; the physician must therefore determine the degree of danger attending Bell’s paralysis, and other insulated paralytic af-

fections, not by the extent of the parts engaged, but by the cause which has given rise to them.

In almost all the cases of Bell's paralysis heretofore published, the cause has been local and external, and therefore this paralysis is usually considered to indicate no deep-seated or dangerous lesion. That it is not always so, however, the instances brought forward by Abercrombie, and Mr. John Hamilton, distinctly prove; for, in both, the disease arose from destruction of the portio dura, occasioned by a caries of the petrous portion of the temporal bone, necessarily fatal. The following case is similar, and is peculiarly instructive, as proving that caries of the petrous portion may exist in a very chronic form, combined with otirrhœa, and may not give rise to any urgent symptoms affecting the general health until long after the portio dura has been destroyed, and Bell's paralysis been produced.

From an attentive consideration of the history of the following case, it would appear that the disease first destroyed the membrana tympani, the internal ear, the ossicula, the portio dura of the seventh pair within the aqueduct of Fallopius, together with a good deal of the petrous portion of the temporal bone on that side which looks towards the tympanum. During this stage, Bell's paralysis was produced and profuse otirrhœa existed without any cerebral disturbance. But as the disease eat its way inwards, until it perforated the dura mater, the matter formed found a readier exit into the cavity of the arachnoid, and an entirely new set of symptoms commenced, denoting cerebral and spinal disturbance. The cessation, or diminution of the flow of matter from the external ear at this point of time cannot therefore be considered as the result of a vicarious suppuration set up in parts more deeply situated, but must be regarded as the simple results of the fact, that the progress of the disease has formed a new opening internally, into which the matter finds a readier vent.

CASE I.—*Paralysis of the Muscles of right Cheek, from Destruction of the Portio Dura, produced by Caries of the Temporal Bone ; Convulsions ; Death ; Post Mortem ; Caries of the Bone ; Sac of the Arachnoid from Brain to Cauda Equina, filled with Pus.*

A boy, about ten years' old, was admitted into the Meath Hospital, labouring under general dropsy ; he appeared of a scrofulous habit, and was much worn down by long-continued diarrhœa. Under appropriate treatment, his symptoms gradually, but slowly disappeared, and he was restored to comparative health. We now observed that the right side of the face was affected with paralysis, and on examination, found that he had been subject to a discharge from the right ear for seven years previously. The paralysed cheek presented the phenomena usually observed in "Bell's paralysis." He was attacked soon after with acute pain in the ear, and in left side of the head ; a fortnight after convulsions set in ; the pain moved from the side to the back of the head, then to the back of neck, and ultimately extended the whole way down the spine, and about this period the otirrhœa diminished. A few days before death *he was attacked with spasms resembling those of tetanus, and the surface of the body became exquisitely tender to the touch.* He never had any loss of motion, and to the last his intellect was perfect.

From the period when the pain set in to that of his death, the convulsions returned about six times.

PostMortem.—The portio dura was dissected on the face, and found healthy ; the nerve was also healthy from its origin at the base of brain to its entrance at the meatus auditorius ; immediately above this opening the dura mater was of a greenish colour, detached from the bone, as if by fluid, and perforated by a round hole, large enough to admit a small crow-quill. On dividing this part of the membrane, the space between it and the bone was occupied by a thick, greenish, and offensive pus, and the opening in the dura mater was observed to lie exactly

opposite the foramen in the petrous portion of the temporal bone, called the *aqueductus vestibuli* ; this opening was much enlarged, and the bone around it was in a carious condition. The nerves at the base of the brain were bathed in this thick green pus, but the organ itself was every where healthy, and free from any excess of vascularity. The arachnoid was nowhere thickened or opaque, and the pia mater not more injected than natural ; the ventricles were not distended. Our attention was next directed to the state of the spinal cord ; the theca vertebralis was much distended by the same kind of matter, which flowed abundantly from any accidental puncture of the membrane. The matter was contained in the sac of the arachnoid, which membrane was quite healthy, and presented its usual glistening appearance, no thickening or opacity observable in any part of its extent ; the pia mater was also free from disease ; all the attachments of the *ligamentum dentatum* remained unbroken. The spinal marrow, on being slit up, presented no trace of disease ; the roots of all the nerves from the base of the brain to the cauda equina were bathed in the pus, the presence of which fluid on the surface of the brain and spinal marrow, had, no doubt, irritated those organs, and occasioned the tetanic symptoms and the cutaneous tenderness.

Surgeon Mac Donnell, my clinical clerk, traced the portio dura through the aqueduct of Fallopius ; about a quarter of an inch from its entrance, the nerve was completely divided ; the petrous portion of the bone was extensively destroyed, and presented a mere shell ; the membrana tympani and all internal ear destroyed.

CASE II.—*Spasmodic Action of the Muscles supplied by the Portio Dura.*

The following case contrasts in an interesting way with the former, exhibiting the vitality of the parts supplied by the portio dura, affected exactly in an opposite manner, for the muscles that, in the one, were paralyzed, were, in the other, subject

to a spasmodic action, which lasted for several months, and during the period of its greatest intensity returned about every fourth second. I am not aware that this disease has been hitherto described, and therefore, am authorized to give it a name; and, accordingly, in honour of the great man to whom we owe such extensive discoveries in the physiology and pathology of the nervous system, and who has more particularly thrown such light on the affections of the portio dura, I propose calling it “*Bell’s spasms of the portio dura.*”

A woman named Quinn, aged 40, of spare habit, was admitted into the Meath Hospital, June, 1841. She stated that her complaint commenced four years and a-half before, in the following way: the lower eyelid of the right eye became affected with spasmodic twitches, producing a kind of winking; the other muscles of the face which receive branches from the portio dura, and which it is unnecessary to enumerate, became affected in a similar manner by degrees. This disease was unpreceded by pain in the head, ear, or any part of the face. Her general health was good. On admission all the muscles of the face supplied by seventh were affected by spasmodic contractions occurring many times during a minute. The angle of the mouth and ala nasi of the right side were pulled towards the ear; the lower eyelid closed in a peculiar manner, producing a rather ludicrous kind of winking. It was also observed that the platysma myoides participated in each spasmodic contraction, and its fibres were seen throwing themselves out strongly in relief, in well marked bundles. She also complained that the os hyoides was sometimes pulled towards the right ear. *These phenomena occurred during sleep*, and were greatly exaggerated by any degree or kind of excitement. She complained of constant noise in the right ear, without any pain; but the sense of hearing was quite unimpaired. No diminution of sensation, or alteration of the temperature of the affected side. Her general health was good.

The phenomena presented in this case were all owing to

some unknown affection of the portio dura. The only muscles engaged were those receiving branches from that nerve. We know that on quitting the stylo-mastoid foramen the portio dura sends a branch to the stylo-hyoid muscle and another to the digastric, both which muscles being connected to the os hyoides, will, of course, when affected by spasms, drag that bone towards the ear of the same side. In the substance of the parotid gland the nerve divides into two large branches; one ascends on the face, called the temporo-facial; the other, the cervico-facial, assists the former in supplying the muscles of the face and chin, and also sends some *remarkably long branches to the platysma myoides muscle* and the other superficial muscles of the neck. Can we explain the constant noise in the ear, *unaccompanied by pain or loss of hearing*, by a similar spasmodic action of those small muscles of the internal ear which receive branches from the portio dura, by which a muscular *bruit* was produced, the intensity of which may have been greatly exaggerated by its vicinity to the organ of hearing.

IV. RECOVERY AFTER A FALL FROM A HEIGHT OF SIXTY FEET.

The following remarkable case has been forwarded to me by my friend, Dr. Bewley, of Moate; I shall lay it before my readers in his own words.

“ *Moate, 12th December, 1840.*

“ MY DEAR DOCTOR.—It was only a day or two ago, while at Clara, that I recollected my promise to furnish you with a full account of the man who fell from the mill. I now send you the case, as I wrote it at Clara, where I had the assistance of Mr. Goodbody as to dates and other little et ceteras, and I can certify that it is all perfectly correct.

“ In the last week of June, 1839, about noon, George Metcalf, aged 25, of a muscular and athletic frame, fell from a scaffold at the height of sixty feet on a hard stony road, adjoining a mill of Mr. Goodbody's, Clara, the slating of which he had just completed. He fell on the right hip and side;

several persons, who witnessed the fall, immediately hastened to his assistance, and found him lying on his right side, perfectly insensible. In less than five minutes consciousness returned, and he desired one of the men who attempted to support him ‘not to hurt him, as his back was injured.’ He was placed on a door, and carried to an adjoining house, complaining very much of the pain produced by the motion. On being undressed and put to bed, no appearance of injury could be perceived on any part of his body. He appeared very cold, and constantly inclined to relapse into an insensible state, from which, however, he was easily roused. He continued in this state for six hours before I saw him. I found him in a state of collapse, with an icy cold skin, without pulse at the wrist, and a countenance expressive of great anxiety. He complained of severe pain in the right leg and side. On examination, I perceived emphysema of the whole right side of the trunk and neck, but no appearance of a bruise or fracture, or indeed of any external injury, excepting a slight scratch in the right temple. There was no evidence of a fractured rib, no expectoration of blood, and no evacuation of blood from the stomach or bowels, neither was there any retention of urine. Notwithstanding the application of heat to the feet, the frequent use of turpentine enemata, and the constant administration of hot drinks, with wine occasionally, the collapse continued for thirty-six hours. Reaction having at length taken place, he was bled, and immediately declared himself relieved. From that moment he continued rapidly to improve, being every day visibly better, and was allowed to eat meat in less than a week. The emphysema gradually disappeared.

“In about a fortnight after the accident he was able to leave his bed, complaining only of pain in the hip. He afterwards removed to the Tullamore Infirmary, where the affection of his hip was treated as sciatica, and a caustic issue was inserted behind the trochanter. Having remained a month in the Infirmary, he was discharged cured. I have never seen him since, but I

can perfectly recollect that he was quite positive that his consciousness left him at the moment he fell from the scaffold. ‘I only recollect,’ said he, ‘slipping from the scaffold, and afterwards finding myself in bed ; I remember nothing of coming to the ground.’

“ Metcalf was of a herculean frame, and a perfect model of manly symmetry. He had been of intemperate habits, and always fond of running dangerous risks for the purpose of exhibiting his courage and recklessness,—a regular dare-devil. I have heard of various instances of his feats in this way, one of which I shall give you. A chimney-sweeper having been sent up the newly-built chimney of a neighbouring mill, to remove some projecting fragments of mortar, stuck so fast when within three feet of the top of the flue, that he could neither stir upwards or downward ; various means of extricating the poor fellow having been suggested and abandoned, Metcalf volunteered to release the prisoner. Having got out on the roof of the mill, he proceeded along the ridge till he reached the gable end, when he mounted the chimney and stood with a foot at either side of the flue ; he then thrust a stick down the chimney, calling to the sweep to ‘hold it fast.’ Without the slightest regard to the danger in which he was placed (at a height of sixty-five feet), or the least consideration as to what should become of him if the sweep relinquished his grasp of the stick, he actually drew him up from his hiding place, and both descended in safety.

“ EDW. BEWLEY.”

V. ACUTE ARTICULAR RHEUMATISM, ATTENDED WITH PERICARDITIS, AND AFTERWARDS BY SYMPTOMS OF DELIRIUM TREMENS.

A man named Reddy, æt 27, was admitted into the Meath Hospital, June 19, 1841. He was workman in the porter brewery of the Messrs. Guinness, and was in the habit of consuming daily large quantities of their famous XX porter, besides whiskey. Three weeks before admission he was attacked with

rheumatism in all the large joints, which when we saw him were swollen, red, and painful, the fingers of both hands were semi-flexed, and he could not bear them to be touched; his countenance was dejected and expressive of intense suffering; pulse 72, weak but regular; heart's action normal; profuse sweating; inability to move in bed; insomnia; loss of appetite and thirst. He was bled and put on the use of calomel and opium; the quantity of opium taken daily was *four* grains. The next day, 21st, pericarditis was detected, there was nothing remarkable in the signs; the mercury and opium were continued; cupping over the heart followed by blisters directed, and on the twenty-fifth day salivation set in; the cardiac symptoms subsided, and the inflammation of the joints greatly disappeared. The quantity of calomel was diminished from twelve grains daily, combined with four grains of opium to three of the former with one-fourth of the latter every second day. On the 26th the rheumatism appeared much relieved, and the pulse was 88, soft and regular, yet there was something unusual about his appearance; his countenance was excited and his eyes bright, and on inquiry we ascertained that he had slept none during the night, and that he had raved the whole time, occasionally shouting and singing. On the 27th he was much worse, he lay quite prostrated on the bed, the upper part of his body was covered with a profuse perspiration, he had twitching of all the muscles of the face, subsultus, and tremor of lower limbs, he slept none, but raved all night, and about three o'clock, A.M., got out of bed and endeavoured to break through a door into the adjoining ward. His tongue was dry and unsteady when protruded, he answered questions, however, rationally, and said he had *no* *headach*; pulse 116, very weak.

He was now ordered one grain of opium, in the form of pill, every fourth hour, and four ounces of wine in the day.

On the 28th the report states that he fell asleep after the third pill (about eleven o'clock), and did not waken for six or seven hours, when he again commenced shouting and singing,

but soon became quiet, and at eight o'clock the following day the tremors had greatly diminished ; his countenance was vastly improved, skin cool, tongue steady when protruded, but dry and furred, and his intellect restored. It was found necessary to increase the wine from four to sixteen ounces since the 27th.

On the 28th all the symptoms of delirium tremens had vanished, he was free from headach, his skin cool, tongue moist and no thirst, and the pain in the joints nearly gone.

The wine and opium were now both diminished gradually, and in ten days after he was discharged perfectly cured.

The complication of delirium tremens with acute rheumatism is not by any means common, and it is remarkable that in this case the first symptoms of the affection manifested themselves the day after the quantity of opium was diminished. Can we explain this by supposing that the opium acted as a stimulant, and that being stopped suddenly it produced the same train of symptoms that usually follow the leaving off of any strong stimulant that had previously been largely indulged in.

This explanation may seem at first plausible, but we know from experience that when opium acts *beneficially*, as a medical agent, it seldom produces any of the bad consequences that follow its exhibition in a healthy state of the body, an illustration of which this case affords, for we find that it neither occasioned headach, heat of skin, furred tongue, thirst, contracted pupil, or acceleration of the pulse. We must, therefore, look upon the circumstance as a mere coincidence, and we can easily comprehend how delirium tremens might occur in a patient of intemperate habits during the course of a painful illness, by which he was much reduced and worn down.

Opium has lately been much employed in the treatment of acute articular rheumatism, and we are indebted to Dr. Corrigan for an excellent paper on this subject. The practice is, however, by no means new, for opium has long been employed for this purpose in America, and I find that the celebrated Doctor Pearson of London used it in preference to all other remedies.

In the third volume of the Medical Gazette there is an account of a discussion at the Westminster Medical Society, upon the treatment of acute rheumatism, and Dr. Gilbert Burnett is reported to have said, that “ he was a pupil of Dr. Pearson’s, but had always heard him speak of calomel with absolute detestation, *while he administered opium in all cases of rheumatism almost to the exclusion of any other means.*” This does not, however, detract in the least from the merit of Dr. Corrigan’s paper, for we are indebted to it for the revival, if not for the origin of a very excellent mode of treatment, and one that will be found, in many cases, to succeed admirably.

VI. A REMARKABLE CASE, PRESENTING THE PULMONARY ARTERY WITH ONLY TWO VALVES, BOTH HIGHLY INFLAMED AND COVERED WITH LYMPH, HYDRO-PERICARDIUM, PNEUMONIA, ETC. ETC.

A man named Bennett, aged 66, was admitted into the Meath Hospital, November 13th, 1841, labouring under pneumonia. There was complete absence of fever; he had cough, with prune juice expectoration, and the physical signs which the case presented were, intense dulness over the right lung behind, extending from the spine of scapula downwards, bronchial respiration, with some crepitus towards the end of each inspiration.

He was cupped, and got tartar emetic in small doses, which was discontinued in consequence of its producing purging. Blisters were applied, but the physical signs remained almost stationary, particularly towards the centre of the lung. His tongue became red and dry, and he suffered from thirst; but in other respects he appeared steadily improving. After the purging discontinued, he was ordered various narcotics, and a seton was inserted opposite to where the disease appeared to be most intense.

On the morning of December 1st, we found him as usual at the clinical visit. The issue was discharging, and every thing

apparently going on well, the next morning we were not a little surprised to find him moribund. Of course, in this state, no examination was made, and in about three hours after our departure he died.

Post Mortem.—The left lung was in every way healthy, except that it presented a few parts in an emphysematous state; the upper part of right was also healthy, but the lower two-thirds, particularly at the back part, presented the usual appearance of solidification; they felt solid, were extremely friable, and did not crepitate. There was no abscess or any purulent infiltration. The pleura was thickened, and was united to that lining the ribs.

The pericardium was distended with a straw-coloured fluid so abundant, that we expected to find pericarditis. The membrane was, however, in every way healthy. The heart felt very soft and lay collapsed; its structure was pale, but otherwise normal. On slitting up the pulmonary artery, it was found occupied by a fibrinous clot, which presented the usual division produced by the branches of that vessel. There were only *two valves*, and they were both coated with a recent deposition of lymph, in some situations almost a quarter of an inch thick. A small part of this lymph was accidentally removed while examining the valves, and the latter were seen much thickened and opaque, in this respect contrasting, in a very remarkable manner, with the valves of the aorta, which were quite free from disease. The lining membrane, both of the pulmonary artery and the aorta, presented its usual appearance, as did also the endocardium. There was some calcareous deposit on the tricuspid and mitral valves, but not to an extent beyond what is frequently observed in subjects of the same age. There was no anasarca or effusion into the chest or abdomen.

This case is one of extreme interest in three points of view; viz., first, their regularity in the number of the pulmonary valves; second, the disease of these valves; third, the hydro-pericardium.

It is exceedingly rare, indeed, to find the valves either of the aorta and of the pulmonary irregular, *but when such irregularity does take place, the valves are increased in number.* There are in the Museum of the College of Surgeons in Ireland, two specimens, exhibiting the aorta with four valves, and one case is given by Malcarne, where the aorta divided soon after its origin, and in which five valves were found. I have heard that there is in the above Institution, another preparation shewing an aorta with only two valves; but I cannot find any account of it in the excellent Catalogue of that Museum, published by Dr. Houston. Any irregularity of the pulmonary valves is still more rare, and, as in the case of the aorta, in the instances on record, their number was increased. The present is, as far as I can ascertain, the only specimen in which this particular irregularity has been observed, and it is remarkable, that it should be united with an affection almost equally rare, viz., acute inflammation of these valves, producing thickening and effusion of lymph.

The presence of a large quantity of fluid in the pericardium, *unaccompanied by inflammation of that membrane, or effusion into any other part,* combined with the two remarkable appearances already mentioned, rendered the case highly interesting. This specimen I exhibited at a meeting of the Pathological Society, and it is now in the Museum of the School of Medicine, Park-street.

The sudden death was produced, no doubt, by the obstruction presented to the course of the blood from the heart into the lungs, added to the existing extensive solidification of the right lung.

VII. ARACHNITIS, WITH EXTENSIVE TUBERCULAR DISEASE OF THE LUNGS; BOTH AFFECTIONS LATENT.

A young policeman, apparently of strong constitution, and on active service up to the date of his present attack, was admitted on the tenth day of his illness into our fever wards. His surface was cold; his feet and hands blue; his pulse seventy,

exceedingly weak ; he lay in a listless state ; he sometimes answered questions slowly, but rationally ; but at other times paid no attention to what was said to him. He had complained of pain in the forehead the first ten days of his illness, but though the question was frequently put to him afterwards, he always expressed himself perfectly free from any pain or uneasiness in that part. During the day he was quiet, but towards evening he generally became delirious and violent, and on those occasions it was found necessary to apply the tight vest. His head was always cool ; he had no contraction of the pupils, no increased pulsations of temporals or carotids, no suffusion of eyes, and no sweating of face or forehead. From the date of his admission, until that of his death, which occurred sixteen days afterwards, he never exhibited the least febrile disturbance ; his pulse fell down to sixty, was weak but regular ; his *respirations always* perfectly natural, and he was never observed to cough. Though in the progress of his disease he got subsultus, jactitation, muttering, and complete insomnia, yet all this time the head was cool, and he presented no positive symptom of an active inflammatory process going on in the brain. Indeed the disease was so protracted, and the disturbance of the nervous system so similar to what frequently occurs in fever, uncomplicated with inflammation, that I pronounced his disease to be nervous fever. Four days previously to death, purging had been present.

Post Mortem.—The dura mater was quite healthy, but the arachnoid in several situations opaque and thickened. At the base of the brain, the nerves were all matted together by a thick yellow lymph, which extended from the optic commissure to the medulla oblongata, concealing from view all those parts which form the floor of the third ventricle, and also the origins of the third and sixth pairs of nerves. The arachnoid covering this lymph was thickened and opaque. The pia mater was much injected, and the substance of the brain was more vascular than natural, but in other respects normal.

The chest was next examined, and our investigation in this

cavity disclosed what we were not prepared to expect. Both lungs were extensively studded with tubercles, and were in every part occupied either by phthisical abscesses, or emphysema. The entire of both upper lobes was converted into abscesses, varying in size from that of a hen egg, to that of a Spanish nut, and communicating freely with one another. These abscesses were not of recent formation, for in every instance their walls were hard, thick, and cartilaginous, and some of the larger were traversed by blood-vessels. Most of them were full of puriform matter; in some, the contents were perfectly purulent, in others, pus mixed with blood, resembling the prune-juice sputa of pneumonia. The head was healthy; the ileum was healthy but the cœcum was inflamed, and presented many ulcers of a long irregular shape, extending through every structure down to the peritoneal coat, which, on the outside, presented no unusual appearance opposite these ulcers. Their edges were elevated, hard, and well defined.

VIII. GLOSSITIS TERMINATING IN ABSCESS.

Idiopathic glossitis is an affection by no means common, and, I believe, it is even more rare to find it terminating in circumscribed abscess. For the above reasons, I have thought it right to publish the following case.

Robert Anderson, æt. 30, was admitted into the Meath Hospital, complaining of pain in the tongue, with difficulty of swallowing, and indistinctness of articulation. The tongue was enlarged, particularly on the left side, about the centre of which a well defined tumour existed, hard and extremely painful to the touch. Pulse ninety, hard, and full. He had not taken any medicines that could have produced this affection. On the following day a soft spot was detected on the under surface of this hardness, which, on being punctured, gave exit to about a thimble full of thick, yellow, and very offensive pus. From this he got instantaneous relief, and left the hospital the same evening.

IX. DIAPHRAGMATIC PLEURISY, IN WHICH MANY OF THE SYMPTOMS SAID TO BE CHARACTERISTIC OF THAT DISEASE WERE ABSENT.

A child, aged 8 years, was admitted into the Meath Hospital labouring under slight symptoms of a rheumatic character. She soon got relief, and was quite well, when one morning she got a great fright from seeing the patient Robinson, whose case I have also related, in a fit of delirium, threatening violence to her. This occurred about six o'clock, A.M., and at our visit at nine we found her sitting up in the bed ; her breathing exceedingly hurried, 76 ; all the muscles of forced respiration acting energetically ; alæ nasi greatly dilated at each inspiration ; face pallid and puffed ; lips blue ; occasional dry hacking cough ; countenance anxious ; pulse 120, weak and small. She did not complain of pain in any particular part, but of a general uneasiness ; she had no tenderness of the chest. When we placed the hand over the cardiac region, a distinct fremissement was felt, but the sounds of the heart were quite distinct and unaccompanied by any abnormal sound. There was no dulness over the heart nor the chest, except at the lower and back region of right lung, corresponding to which there was loss of the respiratory murmur. There was no evidence of any abdominal disease. She was visited again in the evening by my clinical clerk, Mr. Mac Donnell. She was then lying on her right side, but could not remain in the same position for more than a minute ; her respirations were 80 ; her pulse not to be felt ; feet cold ; surface covered with clammy sweat ; countenance extremely anxious ; face presented a puffy appearance ; occasionally biting her lips ; short, dry, hacking cough ; no expectoration ; she does not complain of pain of the chest ; the margins of the ribs were pressed upon without producing uneasiness ; no pains shooting from ensiform cartilage to the spine ; pressure on the right side gave relief, and she requested this to be repeated. Though the fremissement still existed, yet the sounds of the heart were unaccompanied by any noise ; and the action of that organ was strong,

though, as before remarked, there was no pulse perceptible at the wrist; over the lower portion of the right side the dulness still continued, and corresponding to it was a distinct *frottement*; no *œgophony*. It was immediately over the seat of this *friction* sound that pressure gave relief. At three o'clock next morning she died.

Post Mortem.—The chest was percussed, the left side sounded clear both before and behind, but the right, during life, which was clear with the exception of the lower part, as before observed, now gave a completely dull sound over the greater part of its extent. On opening the thorax about two quarts of a straw coloured fluid escaped from the right pleural cavity. The pulmonic and parietal pleuræ were thickly covered with recently effused lymph, bands of which extended from one to the other; these bands were of recent formation and were easily broken down. The thoracic surface of the diaphragm was likewise thickly covered with lymph, and the lower portion of the right lung, which lay in apposition with it, was agglutinated to it by this material, but not to such a degree as to prevent its being detached. The lower portion of this lung was carnified—the result, doubtless, of a previous pneumonic attack. On the left side there was no disease whatever of the lung, but the diaphragmatic pleura was coated with lymph in the same way as on the opposite side; the lower portion of the lung was likewise covered with this substance. The outer surface of the pericardium was not covered with lymph, but as it lay in contact with the inflamed membrane of the diaphragm, which muscle was acting with great energy, some of the phenomena, viz., the *fremissement* over the cardiac region, very probably from this circumstance receive an explanation. The pericardium contained no fluid, and this membrane, as well as the heart and its valves, were in every respect quite healthy. No disease of any of the abdominal viscera or inflammation of the peritoneal surface of the diaphragm.

The older writers asserted that the *risus sardonicus* and delirium were constant attendants on the affection under consi-

deration; this we now know to be erroneous, but it is worthy of remark, that in this case not one of the symptoms laid down by moderns as depending on diaphragmatic pleurisy were present. Andral states, that pain along the margin of the ribs, increased by pressure or by respiration, pain in the hypochondria, and complete immobility of the diaphragm are indicative of this malady, and that the patient sits forward; any attempt to change his position producing intolerable pain. In such cases hiccup, nausea, and vomiting have been observed. In support of this view he cites four cases, yet we find in an example even better marked and less complicated than any he relates, that these symptoms were absent.

Dr. Stokes, in allusion to the above statements of Andral, says, "It is obvious that symptoms such as the above do not necessarily belong to inflammation of the diaphragmatic pleura, as they are seldom or never met with in ordinary empyema, when the whole pleura is equally engaged. On this subject additional facts are wanted."—A view in which we entirely concur.

X. PERIOSTITIS OF THE BACK OF THE PELVIS, SIMULATING DISEASE OF THE HIP JOINT.

It is to be hoped, that in recording the following cases, I shall not incur the charge of publishing as novel, facts already well known, for as in each case an incorrect view had been taken of the disease, and in appropriate treatment employed, may we not infer that the diagnosis of affections about the hip joint will be rendered more certain, and consequently our treatment be attended with more success by laying before the Profession cases like those I am about to detail?

CASE I.—*Periostitis of Os Ilium simulating Morbus Coxæ.*

Thomas Rogerson, æt. 26, servant, admitted into the medical wards, Meath Hospital, June, 1841. Three months before admission was attacked with pains in different parts of the body, but in no part so severe as about the left hip; the pains in the other parts subsided spontaneously, but that in the hip became

more severe, and in a few days he walked lame. He applied to various practitioners, all of whom directed their treatment to the supposed condition of the joint, and one in particular, who ranks amongst the highest of our surgeons, put him under a course of mercury. His lameness, however, increased, and the pain remained unrelieved till his admission, when the following were his symptoms: “He complained of pain *about the hip joint*, increased by walking or by flexing the thigh so as to render tense the glutæi muscles, or by any of the convulsive respiratory movements such as coughing, sneezing, &c. &c. If jostled against in the streets the pain became so excruciating as almost to induce fainting. He suffered *no increase of pain by striking the heel*, but when the trochanter was pushed against the acetabulum his sufferings much augmented. No starting in the limb, *no pain in the groin or knee*, no increase of pain at night. The thigh was slightly atrophied, and the fold of buttock remarkably obliterated. When in the erect position, he threw the whole weight of his body on the sound limb, and the affected one was advanced forward as in the first stage of the morbus coxæ. Measurement announced both limbs of equal length. On examination the motions of the joint were found perfect, and none of them attended with any uneasiness *except extreme flexion of the thigh*. There was no tenderness in the immediate vicinity of the joints, but between the acetabulum and the ilio-sacral symphysis an exquisitely tender tumour was discovered about the size of a small walnut, well defined and immoveable, soft to the touch, but presenting no fluctuation; corresponding to which there was a general fulness of the buttock, contrasting strongly with the atrophy noticeable in every other part of it. There was no redness or œdema. He had never had any rigors since the commencement of his illness—never had syphilis, and, as before mentioned, had been well salivated. His general health was very good.

Before commencing the treatment, it was a matter of considerable importance to make a diagnosis as accurate as possible.

The question resolved itself into the following form : Was this a deep-seated and chronic abscess, or was it periostitis ? The probability of morbus coxæ was not countenanced either by the history of the case, the examination of the joint, or the result of previous treatment, and after some deliberation, I concluded it must be a case of periostitis, and the treatment founded on this view, was followed, as shall now be detailed, with success.

June 29. Twelve leeches were applied over the painful tumour, and he got ten grains of hydriodate of potash three times a day.

July 3rd. Was greatly relieved by the leeches ; a blister over the swelling. This blister was kept open by a tartar emetic lotion, and on the 6th the following note was taken : “ pain almost gone, can walk with scarcely any lameness.”

R Cont. Mist. Hyd. Pot.

July 10th. Very slight pain when the tumour is pressed upon. The fulness over the situation of tumour has quite disappeared ; to have another blister, and continue medicine.

July 15. He left the hospital quite free from any pain about the part, no matter how rudely pressed ; the different movements, which before caused so much suffering, were not now productive of any ; his lameness had quite left him, and he could throw his whole weight on the limb of affected side, and walk as well as ever he did.

Mr. Colles, in his admirable Treatise on the Venereal Disease, page 187, says, “ It may not be amiss to mention the extraordinary influence which a node on the femur sometimes has upon the condition of the entire limb. The node on this bone is generally seated on its lower third, or lower half, and on its anterior surface. Of course, it is scarcely perceptible by the eye, but is readily detected by carrying the hand along the front of the bone, and by squeezing it as we descend. Should the disease have existed for any length of time, we shall, upon close examination, discover, that this limb, through its whole length,

is less full than the other, which is free from disease ; and if we compare the nates, we shall be led to suspect that there is morbus coxæ, so close is the resemblance of the buttock of the affected side to the condition in which we find it in that disease ; indeed, *there is only wanting the painful feeling in the groin to complete the picture* ; as not only is the limb more wasted, and the nates more flat, and its fold more low, but there is even *an apparent elongation* of the limb at the knee and ankle ; *and, in some cases, I have seen these characters fully as striking as in cases of genuine simple morbus coxæ.*" If, then, many of the symptoms of morbus coxæ can be simulated by a venereal node on the lower portion of the femur, may we not conclude, that a periostitic tumour so closely situated to the joint will *à fortiori*, produce symptoms bearing even a stronger resemblance to that disease. In the case of the venereal node, the practitioner will derive assistance in his diagnosis from the history of the case, and the co-existence of other syphilitic symptoms ; but in instances such as that just related, he must depend entirely upon a careful examination of the affected limb, and of the parts in the vicinity of the hip joint.

A strong healthy looking man was admitted into the medical wards of the Meath Hospital, October, 1841. He stated that for a year before admission he had pains in different parts of the body, which he fancied were of a venereal nature, as he had had chancres four years before their appearance. The pains were not, however, accompanied by any syphilitic symptom ; but under the impression that they were connected with that disease, he took, of his own accord, mercury irregularly, and for a long time. For three months before admission, he was completely lame and unable to follow his usual employment. He had been treated by several practitioners for inflammation of hip joint, and latterly for sciatica. On admission, he presented the marks of recent moxæ all along the course of this nerve. The limb was wasted generally, but the nates more particularly ; the fold was obliterated ; he did not complain of pain on

striking the heel or pushing the head of bone against the acetabulum. There was no tenderness about the trochanter, *no pain in the groin or in the knee*; but he complained of pain constantly fixed in a situation corresponding to the upper margin of the sciatic notch, and of occasional shooting pains along the course of the sciatic nerve. *The limb appeared longer than the other*; but there was no difference on measurement. He could lie on the affected side with greater ease than on his back; all the motions of the joints were unimpaired; but extreme flexion (as in the case of Rogerson), greatly augmented his pain. Aided by our experience of the former case, attention was immediately directed to the back of the pelvis, and we were struck by the appearance of fulness presented by the glutæi muscles in a situation between the position of the acetabulum and sacroiliac symphysis, about one and a-half inches above the level of the great trochanter. Here there was a diffused swelling, and on closer examination a well defined and circumscribed tumour was detected, soft, not moveable or fluctuating, and exquisitely tender to the touch. He did not complain of pain when pressed upon in any other situation than that we have just mentioned. There was no tenderness of the sciatic nerve.

The tumour was larger than that in Rogerson's case, and when we take into account the situation in which it occurred, we can easily see the cause of the shooting pain running along the course of the sciatic nerve, so severe, as to have misled the surgeon under whose care he had placed himself immediately before admission into a belief that the disease was sciatica. He was treated by leeching, blistering, and got hydriodate of potash internally. The medicine was stopped for a week, owing to a bowel complaint, but was then resumed; and at the end of a month he was discharged cured. The lameness had disappeared, the fulness of nates subsided, and no trace of the tumour remained. For some days before dismissal, no pain whatever was complained of.

X. THREE DEEP-SEATED ABSCESSSES IN THE NECK, ATTENDED WITH DIFFICULTY OF BREATHING, TWITCHINGS OF THE MUSCLES OF THE FACE, ETC. ETC.

A boy named Cartney, aged 12, was admitted into the Meath Hospital labouring under the following symptoms, which he stated were only of three days' standing. He complained of pain in the lower part of the neck, just above the sternum, and extending outwards under both sterno-mastoid muscles, and which was much increased by pressure. There was very little swelling; the space between the two muscles, just named, at the lower part of the neck appeared full; there was no redness or œdema. Just above the sternum there was inflammatory induration, but no soft point was detected. The chin was approximated to the chest, and any effort to bend the head backwards was attended with pain. He complained of pains of a lancinating character shooting up and down through the lower part of the neck, and when these were most severe, the muscles of the face were thrown into strong spasm, resembling their condition in tetanus. His breathing was hurried and difficult; but he *had no stridor*. He complained of dysphagia. There was no enlargement of the tonsils, or œdema of epiglottis or uvula; skin hot; pulse 112, very small; no cough. He died the next morning, previous to which he had an attack of convulsions.

Post Mortem.—The integuments and muscles were dissected so as to expose the thyroid gland. This body presented its usual appearance, except that it was pushed forward, and was more prominent than is commonly noticed. On dividing a strong fascia on one side of the gland, a large quantity of extremely foetid pus, of thick consistence and greenish colour, escaped. The thyroid gland being divided, an abscess about the size of a hen egg presented itself, lying behind that gland and in front of the trachea. This abscess communicated with two others, one on the right side of the trachea and the other on the left; that on the right extended between the trachea and

œsophagus ; the one on the left did not go in between these tubes, but advanced upwards. They both contained the same kind of matter as that already described. Forming part of the contents of the abscess on the left side, was the recurrent nerve, *completely dissected from surrounding parts, up to where it gets under the inferior constrictor of the pharynx*, here it presented a reddish hue, and seemed enlarged.

These abscesses had no communication either with the trachea or œsophagus.

ART. XI.—*A Case of accidental Poisoning by Arsenuiretted Hydrogen.* By CHARLES O'REILLY, M. D., Licentiate of the King and Queen's College of Physicians, Lecturer on Medical Jurisprudence in the Dublin School of Medicine, Peterstreet, &c. &c.

[Read at the Association of the King and Queen's College of Physicians in Ireland, on Monday, 1st Nov. 1841].

DR. CHRISTISON justly observes, that of all varieties of death by poison, none is so important to the medical jurist as poisoning with arsenic, on account of the great facility of procuring the poison, and the ease with which it may be secretly administered ; but of all the forms in which it can be introduced into the system there is none more deadly than arseniuretted hydrogen, taken by inhalation, from the extent of mucous surface exposed to its action. *Fortunately, however*, this form is exceedingly rare ; only two examples are recorded, that of Gehlen, the celebrated chemist, and Beard, a young British lecturer on chemistry ; but in both we are left almost in ignorance as to the symptoms occasioned by it or the pathological appearances. M. Fumay states, that an entire family were poisoned by it. The possibility of this gas producing such a result has been denied by Ollivier. In the case by Fumay, the gas was said to be produced by throwing arsenic into a privy. The following case, I hope, may assist in some degree to throw light on this important subject :

On the 23rd of October, 1841, Mr. Brittan, a druggist and chemist, aged 31, previously in good health, inhaled at two different periods about 150 cubic inches of impure hydrogen gas, believing that if pure it would not prove injurious to the constitution, and that the only symptoms arising from it would be a change of voice, a shrillness following such inhalation ; and that he might record the result in a book which he was about publishing on chemical manipulation.

Immediately after inhaling the last portion of gas, he was seized with giddiness and faintness, followed by shivering, during which he had an evacuation from his bowels, and a quantity of blood, amounting to two ounces, was discharged without pain from the urethra ; shortly after he felt pain in the lower extremities, more particularly in the right, and numbness of the superior, and afterwards of the inferior extremities, followed by a tingling sensation. On the subsidence of these symptoms, which continued for the space of two hours ; he was seized with slight pain in the loins ; during this time he had constant vomiting, every drop of fluid was rejected—soda water, ærated lemonade, saline mixture, &c. ; this violent vomiting continued from three o'clock, being about half an hour from the reception of the poison, until seven o'clock, P. M. When I saw him, there was nothing remarkable in his appearance ; he complained of considerable weakness, referring it to the distress occasioned by the constant vomiting, and a bitter taste in his mouth ; his pulse was 90, but feeble ; temperature of the surface lowered, and the voice whispering, which alteration, his assistant stated, took place while inhaling the gas ; dull pain in the epigastrium on exercising pressure with the hand ; the matter vomited was greenish, and in large quantity, about two quarts. To allay the irritability of the stomach, and produce reaction, the following remedies were employed : a draught with opium and ammonia was directed, in orange flower water, to be taken every third hour ; the feet were immersed in warm water, and an emollient injection administered. On my return at ten o'clock, P. M., the

draughts being repeated, eight leeches were applied to the epigastrium, followed by a poultice, and four drops of the black drop, with three grains of mercury with chalk, were directed to be given every second hour.

24th. Vomiting continued every hour during the night ; somnolency during the interim ; the vomited matter presented the same greenish character ; bowels freed by the injection ; no urine ; face presented a copper colour, or rather a dark reddish-yellow ; the remainder of the body of a greenish-yellow ; the conjunctivæ of the same colour ; white objects however do not appear coloured ; pulse 80, and strong ; the slight tenderness in the epigastrium still continues, but he is free from pain ; has had troublesome hiccough. Same remedies, with diluent drinks ; also ten leeches to the epigastrium, and a mustard cataplasm (after bleeding had ceased) to be applied for twenty minutes.*

Evening.—The vomiting of the greenish fluid not so frequent, now every two hours ; has passed about a table spoonful of blood from the urethra, which I did not see ; is perfectly intelligent, and has been so from the commencement ; does not complain of pain. Opium omitted ; a blister was applied.

25th. Vomiting less frequent ; pulse 76 ; occasional hiccough ; no evacuation from bowels ; no urinary discharge ; no pain in the epigastrium ; an aperient mixture composed of sulphate of magnesia and infusion of roses ; also a domestic enema ; coffee, tea, chicken, or beef tea for drink, were ordered.

26th. Stomach has retained mixture ; jaundice disappearing ; bowels freely evacuated ; discharges loaded with bile ; has vomited three times during the day and night ; no urine. The following draughts were ordered : bi-carbonate of potass, five grains ; syrup of roses, one and a-half drachm ; water, six drachms, every third hour ; cream of tartar water ; the carbo-

* The blister, although remaining on sixteen hours, did not produce a single vesicle ; blistering plaster from a second establishment, allowed to remain on for twelve hours, scarcely produced any alteration of the surface.

nated lemonade omitted; iced water as drink, with occasionally chicken broth, and wine and water.

27th. Jaundice has nearly disappeared; no fever; considerable weakness; no pain; has vomited once during the night the same coloured fluid; was exceedingly restless; great thirst; bowels natural; no urine; the face somewhat œdematous; a slight ammoniacal odour perceptible from the breath; pulse 80; somnolency during the day. To be put into a hip-bath for twenty minutes; continue diluent drinks and the following draughts every third hour; nitre, ten grains; syr. one drachm; sweet spirit of nitre, twenty drops; water, six drachms, with occasionally a glass of claret.

28th. Has had a restless night; face slightly œdematous; the tongue is somewhat enlarged; and on its right side a deep irregular ulcer has appeared; breath having an ammoniacal odour; no urine found in bladder, although catheterism was employed; the bowels twice moved during the night; complains of nausea and fulness in the epigastrium. At the suggestion of Dr. Graves, a liniment of vinegar of squills and muriated tincture of iron was freely rubbed on the lumbar region; he was also put into a hip bath.

Evening.—Somnolency increasing; loss of memory; face œdematous. At the suggestion of Sir H. Marsh and Dr. Stokes, equal parts of lime water and milk were given; wine occasionally.

29th. Nine o'clock, A.M., has slept occasionally; bowels seven times moved; an exceedingly small quantity of urine has passed, depositing a little blood; has taken only a pint of drink; has had a more comfortable night; pulse 102; skin natural; no pain; odour from breath the same; tongue exhibiting a second tubercle, pointed, and of a dark colour; complains of palpitation. Twelve o'clock, great weakness, but in other respects better; pulse 76; complains of no pain; œdema increased; Seltzer water and claret were ordered. Four o'clock, has commenced sinking; musk draught, also brandy and water were given. A little before seven he expired.

Post Mortem Examination, thirty-six hours after death, in which I was assisted by Drs. Woodroffe, Neligan, Thomas Mitchell, and Henry. Universal anasarca ; integuments of the abdomen of a slight greenish colour, particularly at the sides ; abdomen greatly distended with gas ; on opening the chest, we found the lungs completely collapsed, natural in structure, but containing little air ; a fluid, to the amount of two pints, of a reddish-brown colour, without odour, was effused into the chest ; heart, pale and flabby, not containing blood, nor changed in structure ; a little fluid in the pericardium.

Abdomen.—Liver of a deep indigo colour, not increased in size ; the gall bladder distended with bile ; the kidneys of a deep indigo colour all through, the left particularly large, the internal structure resembling much the spleen in appearance ; the right smaller and firmer ; the stomach empty ; two distinct patches of inflammation were observable in the greater curvature ; the mucous membrane easily separated ; the bladder empty and natural.

Head.—The dura mater healthy ; arachnoid somewhat vascular, containing air bubbles underneath ; the substance of the brain presented bloodless dots ; no fluid in the ventricles.

In this case, we have many points for consideration : First, what were the impurities which the hydrogen contained ? For the elucidation of this question, I obtained the bottle from which the sulphuric acid was procured, and also a portion of the zinc employed by the deceased in the generation of the gas ; and having obtained a double-necked bottle, with two tubes, one, a bent one, for the transit of the gas, and the other, a safety tube, which dipped into the fluid ; and having added water to the acid, in the requisite proportions, I passed the mixture into the bottle, having first introduced the zinc, when immediately hydrogen was evolved, from which I obtained a large portion of arsenious acid and metallic stains. I then heated the tube to redness, and in the cool portion of it, a large quantity of the metal was deposited, forming the well-known *metallic crust*, and

crystalline appearance. The arsenious acid was then subjected to the fluid re-agents, hydrosulphuret of ammonia, ammoniaco-sulphate of copper, and ammoniaco-nitrate of silver, all of which exhibited their characteristic colours. A portion of it was also introduced into a tube with charcoal, and the metal was instantly produced by heat, all of which, with the foregoing results, were exhibited to Sir H. Marsh, and Drs. Graves, and Stokes. The second question for consideration was, in which of the ingredients was the arsenic to be found, or was it in both? In order to ascertain this fact, I sought for some pure sulphuric acid; and after subjecting six different specimens from different respectable establishments in this city, both of the pure and impure, according to the pharmacopœia, I found all to contain arsenic in large quantities.* However, through the kindness of Professor Kane, I was enabled to obtain a *pure acid*,† from which I could not obtain a trace of the metal, although using the ordinary zinc of commerce, as well as a portion of that which I had obtained from the deceased's establishment, and a part of which he had used. So far, then, it is quite evident that the sulphuric acid was the immediate source from which the arsenic was eliminated; and I would wish to caution the public, generally, from employing such acid for medicinal purposes, and also those exposed to the fumes of the acid during its concentration, or using it extensively in the arts, lest injurious consequences may result. According to Orfila, Vagel, Vakenrodde, and Barthel, all the sulphuric acid prepared in leaden chambers contains arsenic in considerable quantity. I have found that the fuming acid of Germany is free from arsenic, at least as far as my experience enables me to form a judgment. Having used iron turnings in place of zinc, the arsenious acid was produced in a similar apparatus, from the British acid, but none from the German. Third, the fluid found in the chest, amount-

* All our sulphuric acid is now formed from the sulphur obtained from iron pyrites and in leaden chambers.

† This was the German acid prepared from sulphate of iron.

ing to twenty-two fluid ounces, of a reddish-brown colour, feebly alkaline, specific gravity 130, was filtered. Ten ounces of this were then evaporated in a sand bath to the consistence of a jelly ; when weighed it amounted to four ounces ; to this two ounces of German sulphuric acid were added and exposed to heat in a sand bath, when it became carbonized. In this state I dissolved it in distilled water and filtered ; after which I placed it in the same apparatus with zinc and pure sulphuric acid. The gas given off was found to contain arsenic from the *stain* produced, and also the garlic odour emitted at the extremity of the tube. This experiment I consider highly valuable, as it is a confirmation of Orfila's statement that arsenic may be obtained from the bodies of persons poisoned by this substance, no matter in what way introduced into the system, although a trace of such may not be found in the contents of the stomach or intestinal tube. In this instance, although inhaled in the form of arseniuretted hydrogen, and though the quantity of arsenic received into the system was exceedingly small, merely sufficient to *destroy life*, still sufficient evidence was afforded of its presence.

In a paper, published in the Guy's Hospital Reports, by Dr. Alfred Taylor, we find the subject of the quantity of arsenic requisite to destroy life ably considered, and evidence afforded that from five to ten grains may kill, judging from the effects of smaller doses ; at the same time the following circumstances are to be taken into consideration, age, sex, temperament, idiosyncrasy, health, or disease.

In order to ascertain with exactness the quantity of arsenic contained in the acid, I took 200 grains of the sulphuric acid, mixed with 400 of distilled water, and passed a stream of sulphuretted hydrogen through it for a considerable time, when a copious yellow precipitate was formed. I then exposed this to heat in a flask, to get rid of the excess of sulph. hydrogen, then filtered, collected the precipitate, which weighed ten grains, dissolved it in water of ammonia, and got rid of the sulphur, which was thrown down with the orpiment, and sub-

sequently weighed six grains ; the equivalents of arsenious acid and orpiment being nearly the same, and calculating the amount of acid used in the separating of the gases half an ounce, I consider the amount of arsenious acid inhaled to have been about twelve grains, as nearly as I could calculate, from the statement made by Mr. Brittan's assistant of the quantity used.

We now come to the consideration of symptoms and pathological appearances—were they those which are stated to arise in cases of poisoning by arsenic or its compounds? The symptoms of arsenic, according to Christison, may be advantageously considered under three heads.

In one set of cases there are signs of violent irritation of the alimentary canal, and sometimes of the other mucous membranes, accompanied also with excessive general depression, but not with distinct disorder of the nervous system. When such cases prove fatal, which they generally do, they terminate for the most part in from twenty-four hours to three days. An example of this form occurred in this city two years since—the daughter of one of the College porters, who purchased in the establishment of the individual, whose peculiar case I am now considering, two ounces of arsenious acid for the purpose of self-destruction, under the pretext that it was intended to poison rats. She died in twenty-four hours from the period of swallowing it. I saw her a few hours previous to her death ; the symptoms were those of violent irritation of the alimentary canal, with excessive general depression, and little nervous disturbance ; the only nervous symptoms being slight cramps in the lower extremities.

In the second form the cases are singular ; scarcely any sign of irritation in any part of the alimentary canal exists, perhaps trivial vomiting or slight pain in the stomach ; sometimes neither. The patient is chiefly or solely affected with excessive prostration of strength and frequent fainting ; death is seldom delayed beyond the sixth hour. I met with an instance of this form of poisoning in the year 1837. Five in family, residing in Ship-

street, were poisoned by eating a cake, in which it was supposed soda had been mixed, but it was found that arsenious acid through accident was used in place of the soda. All partook of a portion of it, and were shortly attacked with vomiting and symptoms of irritation of the alimentary canal, but an elderly woman, whose symptoms were excessive prostration of strength and slight vomiting. Three of them recovered in a short time—only a few hours; the fourth, the father, having partaken freely of the cake, was not totally relieved for two days. The elderly woman died in six hours, with little pain or suffering. On examination of the body, scarcely a trace of change of structure was evident throughout the entire alimentary canal; the stomach merely exhibiting increased vascularity in two or three points.

In a third class of cases life is commonly prolonged, at least six days, sometimes much longer, or recovery may even take place. After a serious illness, the signs of inflammation in the alimentary canal are succeeded or become accompanied, about the second or fourth day, or later, by symptoms of irritation in the other mucous passages, and more particularly by symptoms indicating a derangement of the nervous system, such as palsy or epilepsy.

In the division of symptoms here mentioned, we have those which accompany almost every form of poisoning by arsenic.

The case, however, of Mr. Brittan, cannot be considered as belonging to any one of those forms; accurately speaking, some of the symptoms in his case are to be met with in the first form, namely, that of urinary suppression, as in a case related by Guilbert of Montpellier, in which this symptom continued for several days. The rapidity with which the symptoms of poisoning set in, namely, vomiting and weakness, &c., may be considered as allied to this form. We have an instance of this in the case of Gehlen, who, when occupied with M. Ruhland in researches on the reciprocal action of arsenic and potass, inspired a small portion of the arseniuretted hydrogen; and who,

at the termination of one hour, was seized with continued vomiting, shivering, and great weakness, which increased until the ninth day, when he died. Now, the early symptoms in Mr. Brittan's case were similar in a great degree, but diminished after the first day, nor did he suffer considerably towards the close, as it is stated Gehlen did. We find that the second form furnishes us with many of the symptoms which were met with in the case of Mr. Brittan. First, those of slight irritation in the alimentary canal, and towards the close somnolency, and loss of memory, to which may be added numbness of the extremities and tuberculous state of mouth ; but we are distinctly told that such symptoms are only met with in cases where the arsenic has been taken in very large doses, in masses, or solution. I am happy, however, to find, that Dr. Taylor, in a paper already alluded to, states, that the chief symptoms observed by him, in those who were poisoned by wine, which contained arsenious acid in solution, were violent vomiting, and prostration of strength. I merely quote this in confirmation of the statement of several authors, not as applicable to Mr. Brittan's case, but as showing that the same symptoms may arise even where the dose is small. Several other examples of death, occurring without pain, by this poison might be adduced. In this form we are presented also with the fact of œdema of the face, occurring previous to death, as related by Schlegel of Meiningen. I have, however, to record the following symptoms in the case of Mr. Brittan which I have not seen in any authors, namely, the jaundice supervening on the second day, and the ammoniacal odour of the breath.

With respect to the latter symptom, we know that urine allowed to stand for some time becomes quite alkaline, and effervesces with acids, and that it is employed in some of the arts as a solution of carbonate of ammonia ; this alteration being produced by the urea, a soluble principle, which is so composed, that in adding to its elements water, we obtain carbonate of ammonia. In like manner, in treating urea by the acids, al-

kalies, heat, or ebullition in water, it acts almost in a similar way to carbonate of ammonia, and when left in solution is transformed into this salt. This change may take place in the kidneys in typhus fever. So far, the case resembled one of narcotico-acrid poisoning, in which the cerebro-spinal system appeared to have been engaged, as is evident from the great derangement of the vital functions, and the total loss of sensibility of cutaneous surface. As to the pathological appearances, they, in some degree, differed from those usually stated by authors as occurring in the various forms of arsenical poisoning; particularly the indigo colour which pervaded the entire structure of the liver, and also the state of the kidneys, but the alimentary canal agreed in appearance with the cases already mentioned. The brain, heart, and lungs may be considered, also, not to have presented unusual appearances under such circumstances.

In respect to treatment I consider, with others, that in cases of poisoning there are two periods. In the first, we endeavour to expel the poison, or withdraw and neutralize by chemical action whatever of it may have remained behind. In the second stage we try to counteract and subdue the symptoms which may arise, whether of inflammation or of debility and exhaustion, of excitement or of stupor. In this case, the former consideration was totally set aside, and the second, as well as my judgment could dictate, carried into effect.

In conclusion, I shall state, from the manuscript left by the deceased, his own instructions respecting the mode of inhaling the gas; at the same time I may observe, that society has lost an excellent and useful member, chemical science an ardent admirer and cultivator of its phenomena, and the students of Dublin a friend and instructor. The following are his directions:—"Fill a bladder with hydrogen, as in the wood-cut below, the materials being the same as those used in Experiment 10; (referring to the zinc and acid) this is done by tying a bullock's bladder to a porter cork, through which a hole has been made sufficiently large to admit a small cock, which contains in its turn the bent delivery

tube. The bladder must, of course, be exhausted of air by being squeezed together; when it has become distended with gas take out the small cork, stopping the orifice by the thumb, until the experimenter is ready to breathe it. After taking but one inspiration the voice will become remarkably shrill, the effect, however, passes off in a few seconds, nor is there any danger connected with it."

The experiment of Mr. Brittan has, however, afforded melancholy evidence that it may have a contrary and fatal effect.

ART. XII.—*Observations on the incipient Stage of Cancerous Affections of the Womb.* By W. F. MONTGOMERY, A. M., M. D., Professor of Midwifery to the King and Queen's College of Physicians in Ireland.

THE disease of cancer uteri is too universally recognized as one of the most frightful scourges of humanity, to render it necessary for me to attempt any description of its horrors, or [to impress on even the most junior of my readers, the importance of closely studying the phenomena of an affection hitherto found so utterly intractable by every known means, and which, when once fully established, entails upon the unhappy sufferer, one unbroken train of miseries, from which, it has been truly said, "temporary relief can be found only in opium, and permanent rest only in the grave." But I am perfectly convinced, from many years, observation, that something may be done, to stem, at its source, the torrent of agonies that will otherwise overwhelm the patient, nay, I firmly believe it may, in many instances, be altogether turned aside, and the victim be rescued from the sad fate impending over her.

I am satisfied, that there is a stage of cancer uteri which precedes the two usually described by authors; a stage, in which, the nature of the disease may be detected, its further progress arrested, and its germs destroyed, and the reason why this stage

is not more generally recognized is, that the accompanying symptoms are frequently so slight as to attract very little the attention of the patient, and thus, are suffered to remain without treatment, until a profuse hæmorrhage, or some violent fit of pain sounds the alarm, and then, on examination, the disease is found to have passed into its second stage; the surrounding tissues are indurated and consolidated with the organ concerned, and no human means hitherto discovered can do more than blunt the thorns thickly strewn along the path, which the sufferer must tread, to “the house appointed for all living.”

In other instances, the fault unquestionably lies, altogether, with the medical attendant, who, hearing from the patient, a detail of symptoms frequently met with, about her time of life, takes for granted, that there is nothing unusual, and prescribes for the leading one, without any examination of the uterus; and so, the disease is allowed to advance unrestrained, because unsuspected and undiscovered.

The degree to which this kind of negligence prevails, is almost incredible, and there is none against which I would more anxiously desire to caution the junior members of the Profession.

So many examples of it have, come under my observation, that, for some years past, I have made it an invariable rule, in all cases of equivocal symptoms, to make a vaginal examination an indispensable preliminary to either giving an opinion, or prescribing for the patient.

Some years ago, I was called to see a patient, who, because her husband happened to be a man of gallantry, and she was labouring under dysuria, with purulent discharge from the vagina, and other suspicious symptoms, was pronounced to have gonorrhœa, and was actually taking cubebs for its cure; but on examination, I found the affection to be cancer uteri in an advanced stage.

Another case, a few years since, attracted much attention among the Profession here, in which, a lady was pronounced,

on the authority of a very experienced practitioner, to have cancer uteri; but it was soon afterwards discovered, that the symptoms arose from a stone in the bladder, the uterus being perfectly healthy.

In another instance, a patient came under my care, with a very large polypus in the vagina, under which, she had been labouring, for more than four years; and although, during that time, she had had advice from several medical men, all of whom prescribed freely *for her symptoms*, no examination had been made to discover the cause of the discharge, for the abatement of which she had taken a great variety of medicines, but, of course, in vain.

A fruitful source of error is also to be found in the very general belief, that *regular menstruation* is incompatible with the existence of such serious organic disease as carcinoma uteri; but this is not the fact, for, in several instances, I have known this function continue to be performed with perfect regularity, for many months, in advanced and hopeless states of that complaint; and a well marked illustration of this will be found hereafter, in the case detailed by my friend, Dr. White of Clare.

Much mischief arises also, from a too prevailing opinion that, under a certain age, women are not attacked with cancer uteri; so that, if a patient happen to want several years of the supposed requisite, it is too apt to be taken for granted, that she cannot have that disease; now, the fact is very much otherwise; I have myself put on record* a case in which this disease terminated fatally; at the age of 30 a patient is mentioned by Breschet, who had the disease at 22; and of 409 women affected with it, as reported by Boivin et Dugès, twelve were under 20 years of age, and eighty-three under 30.†

I shall now proceed to give an account of the symptoms,

* Dublin Hospital Reports, vol. v. p. 432.

† Traité des Maladies de l'Uterus, &c. tom. 11, p. 9, note.

pathological changes, diagnosis, and treatment of this affection; and then, subjoin some illustrative cases, with such remarks, as the subject may require.

Symptoms.—Sharp, but comparatively fugitive, lancinating pains in the back and loins, across the supra-pubic region, or shooting along the front of the thigh, or sometimes, along the course of the sciatic nerve, producing numbness, and not unfrequently debility of the whole limb.

In a large proportion of the cases, there is found a decided fulness, or a distinct tumour in one or other iliac hollow, with fixed pain, and tenderness traceable to, and, as it were, issuing out of the abdominal ring; there is, generally, more or less irritation of the bladder, with dysuria, and the patient often complains of a sensation about the lower part of the rectum, which induces her to think that she is labouring under piles. Menstruation, though in some instances disturbed, is much more frequently, quite regular in its returns, but there is apt to be bursts of hæmorrhage, either accompanying the discharge, or occurring in the intervals; there is little, or no leucorrhœal or serous discharge, often none; and it is not until the disease has existed for a considerable time, that the appetite is impaired, sleep is disturbed, the flesh becomes softer and wastes, and the countenance pale, and expressive of distress.

Examination per Vaginem.—The margin of the os uteri is found hard, and often slightly fissured, and projects more than usual, or is natural, into the vagina, and is irregular in its form.

In the situation of the muciparous glands, there are felt several small, hard, and distinctly defined projections, almost like grains of shot, or gravel, under the mucous membrane. Pressure on these, with the point of the finger, gives pain, and the patient often complains that it makes her stomach feel sick.

The cervix is, in most instances, slightly enlarged and harder than it ought to be. The circumference of the os uteri, es-

pecially between the projecting glandulæ, feels turgid, and to the eye, presents a deep crimson colour, while the projecting points have sometimes a blueish hue.

In two cases of women who died, one of fever, and the other, of pneumonia, in a more advanced stage of this condition of the os uteri, the substance of the uterus was found considerably increased in size and thickness, and was intensely vascular.

There is no thickening, or other alteration of structure in any part of the vagina, at its conjunction with which, the cervix uteri moves freely ; nor is there any consolidation of the uterus with the neighbouring contents of the pelvis ; in fact, the morbid organic change appears to be, at first, entirely confined to the os uteri, and lower portion of the cervix.

This stage of the affection is, in many instances, *very slow*, lasting, sometimes, *for years*, before the second and hopeless stage is established ; during this time, the patient experiences only comparatively slight, and transient attacks of pain, or perhaps only sensations of uneasiness, referred often to the situation of one, or other of the ovaries, or about the os uteri, with anomalous tingling along the front and inside of the thighs ; these last for a few hours, or a day or two, and then disappear, perhaps for weeks, but again and again return in the same situation, and for a long time, are not increased in severity ; the patient finds that sexual intercourse, now, occasionally, causes her pain, which she ascribes to some deep-seated part being touched, and the act is followed by an appearance of blood ; she is, also, often troubled with slight irritability of the bladder ; but the appetite, digestion, and sleep, may, for a long time, continue good, and the pulse, generally, gives no indication of the existing disease, or its changes ; an observation, which will be found applicable to many uterine affections of a very grave character ; in short, the general health may long remain quite undisturbed, nor has the patient, in many instances, the slightest suspicion, that there is anything seriously wrong with her, nor thinks of seeking for medical aid, until she is induced to do so, by the so-

licitations of her husband, or some anxious friend who has become, as she thinks, unreasonably alarmed about her state.

In not a few instances, I have known the first indication of ill health to have been pain, affecting the muscles of the back, or extremities, and so closely resembling rheumatism, as to pass for that disease. In a case of this kind which I saw in Thomas-street, in consultation with Mr. Smyly, no suspicion of uterine disease had been entertained, previous to his seeing the patient, until alarm was excited by a profuse hæmorrhage, and on examination, carcinoma was found fully established.

In another case, which I was brought down to see in the County Mayo, the first uneasiness so closely resembled sciatica, that the lady had been, for two years, undergoing treatment for that affection, before the existence of cancer uteri was suspected, and then, the disease was found far advanced.

It very often happens, that the pain connected with carcinomatous affections of the uterus recurs periodically, and exactly at the same hour of the day, and thus, so far, assumes the character of mere nervous, or neuralgic complaints, independent of organic disease, and, in consequence, valuable time has been lost, and the appropriate treatment omitted ; and all this, because the proper investigation was not instituted at first.

Sometimes, both patient and practitioner are deceived, as to the real source of the symptoms, because these happen to be only perceptible in the deranged functions of other, and perhaps, remote organs ; for instance, nothing is more common than for patients to apply for advice on account of irritability of the bladder, or as they often call it “ the gravel,” where the disturbance of that organ is, on examination, found to be only sympathetic with morbid alteration in the functions, or organization of the uterus ; thus, also, I have known œdema of one limb, or swelling of the inguinal glands, the first complaint, for which the patients sought advice, quite unconscious and unsuspecting of any uterine disease ; in one instance, formerly related,* after

* See Dublin Hospital Reports, vol. v. pp. 421, 426.

the continuance for some months, of the condition just alluded to, the uterus was found extensively and hopelessly diseased, and even quite immoveable from consolidation with the surrounding parts.

When patients thus affected do take the alarm, and apply for advice, it is much to be lamented, that their statement is too often received as sufficient grounds for a merely palliative line of treatment, and *their symptoms are prescribed for*, without any examination being instituted, to determine the exact state of the uterus, and ascertain whether there have taken place any organic alteration or not. I am satisfied, that if the very contrary mode of proceeding were adopted, and a careful vaginal examination made the preliminary step in all such instances, and a decided plan of treatment at once adopted and persevered in, many a victim would be snatched from the horrors of a life where agony is measured by years, and death comes invested with the direst tortures that our "flesh is heir to."

Pathology.—Sufficient observation has fully satisfied me, that, in the great majority of instances, the first discoverable morbid change which is the forerunner of cancerous affections of the uterus, takes place in, and around the muciparous glandulæ, or vesicles, sometimes called ova nabothi, which exist in such numbers, in the cervix and margin of the os uteri; (see my work on the Signs of Pregnancy, &c., pl. ix. fig. 2); these become indurated by the deposition of scirrhous matter around them, and by the thickening of their coats; in consequence of which, they feel *at first* almost like grains of shot or gravel under the mucous membrane, afterwards, when they have acquired greater volume by further increase of the morbid action, they give to the part the unequal, bumpy, or knobbed condition like the ends of one's fingers drawn close together. When this *second stage* (usually described by writers as the first) is established, all means hitherto devised have failed in producing any permanent beneficial effect.

It might, at first sight, appear an objection to the above

view, that cancer uteri sometimes commences in the upper parts of the organ, or even in its appendages, where these muciparous follicles, or ova nabothi are not generally supposed to exist ; but that they do exist in these situations, and occasionally appear there very distinctly, I have repeatedly ascertained, and demonstrated, and have preserved several specimens of them fully developed in these parts ; this observation has been made by many others long since (see Morgagni, Epist. 47, No. 20, *et seq.*) ; their detection in a state of development, in the latter situations, is, however, a comparatively rare occurrence.

With regard to the pain and tenderness, with fulness, and sometimes, a distinct tumour, more than once already alluded to as felt in the iliac hollow, I wish to observe, that, this affection of, either the ovaries, or the glands at the sides of the uterus, in different forms, and stages of carcinomatous affections of the organ, is a much more constant occurrence than I think is generally supposed ; and moreover, I am, from repeated observation, much inclined to believe, that it is often the source, from which, the morbid irritation originally springs, and is communicated to the uterus ; it will be seen, that it was observed in three out of four, of the cases described in this paper ; it existed in four out of five cases recently seen by me in advanced states of the disease, and of twelve specimens preserved in my museum, it is observable in every one. I may add, that I feel no doubt, that early attention to this symptom, and the adoption of *decided measures*, suited to its removal, would, in many instances, in which, as yet, no distinct indication of uterine disease can be detected, save the patient from the future occurrence of such a dreaded calamity ; I believe this to be one of those contingencies, in which, if we do not extinguish the spark, we may be, afterwards, unable with all our efforts, to quench the flame.

Diagnosis.—The only affection of the uterus, for which, this disease could be mistaken, and that only by carelessness, is, the irritable uterus ; from which, however, it is essentially different ; inasmuch as it is accompanied by, and tends to produce still fur-

ther change in the structure of the organ ;* which, although unduly sensitive under examination, is not the seat of the *exquisite* tenderness and pain observed in irritable uterus; from which, it also differs in having the increase of volume of the parts affected well marked, and constant, until removed by treatment, and in the existence of the other organic alterations already enumerated,† as well as in the different result of the affection. From the second, or fully formed stage of cancer uteri, any one accustomed to examine the organ must at once distinguish it.

Treatment.—In almost every instance, the treatment should be begun by *the local abstraction of blood*, either by cupping, or by leeches applied directly to the os uteri, or as near as possible to the organ ; and their application will, in most cases, require to be frequently repeated, and should be accompanied by the free use of anodyne fomentations. With regard to *venesection*, although it may be desirable to practise it under particular circumstances, it is not, in general, required ; and I would say, that the case in which it is called for, should be regarded as an exception in the plan of treatment generally most suitable.

Except there be something specially to forbid its use, *mercury* should be given, in some form, so as to bring the system very gently, but decidedly, under its influence ; for which purpose, it may be combined with iodine in very minute proportions, with camphor, opium, hyoscyamus, or hemlock ; and occasionally by friction, especially where there exists evidence of inflammatory action in the iliac hollow, as already adverted to.

* “ The disease,” says Gooch, “ which I have ventured to call the irritable uterus, is a painful and tender state of this organ, neither attended by, nor tending to produce change in its structure.”—Diseases of Females, p. 310.

† “ The neck and body of the uterus feel slightly swollen ; but this condition, also, exists in different degrees, sometimes sufficiently manifest, sometimes scarcely, or not at all perceptible. Excepting, however, this tenderness, and occasionally this swelling, or rather tension, the uterus feels perfectly natural in structure ; there is no evidence of scirrhus in the neck ; the orifice is not misshapen ; its edges are not indurated.”—Ibid. pp. 312-13.

Afterwards, *iodine* or *hydriodate of potash* may be used both internally and externally ; and *iron* will be found a most beneficial and powerful agent, especially in the form of the saccharine carbonate, or the carbonate given in the nascent state.

The *iodide of iron*, which combines, to a certain degree, the powers of both remedies, may also be used with advantage in most cases, and will be best administered in the form of *Dupasquier's syrup*, which is now prepared, of different strengths, by our chemists and apothecaries.

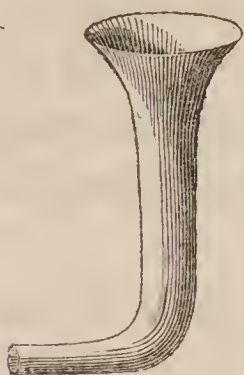
Arsenic has received the testimony of many able practitioners in its favour, as an agent capable of giving great relief in these affections ; and I can add mine, to the same effect, having obtained marked benefit from its use, especially when combined with anodynes, even in advanced states of this disease : of *iodide of arsenic* I cannot speak, from experience ; but, I think, that, both from the nature of the compound, and, still more, from the success which appears to have attended its administration in cancerous affections by Dr. A. T. Thompson and Dr. Crane, of Canterbury, we are justified in expecting, that it will prove a useful remedy in such diseases.

Counter-irritation is an agent of great influence in this complaint, and may be established in a variety of ways, which it is unnecessary to enumerate ; but a very effectual mode is, by making a small blister over different parts, in succession, and keeping it discharging freely for several days, by the application of the French dressing, or Albespeyer's papers.

The *warm bath* and the *warm hip bath* are means of great value throughout the treatment of this affection ; and their effect in soothing the uterine irritation may be much promoted, by admitting the warm water into contact with the internal surface of the vagina and os uteri, which may be accomplished, without difficulty, by introducing into the vagina one of *Lassaigue's speculums*, which are made of wire-gauze coated over with caoutchouc ; or a small plain metal speculum, with perforations in its sides, will answer the purpose extremely well ; and

the patient can apply the instrument for herself, better, indeed, than any one else could. I may observe, that where warm baths are used in the treatment of amenorrhœa, this mode of managing them may be adopted, with great advantage.

After the removal of the congestion and organic changes from the os uteri, there remains, occasionally, a sensitiveness of the part, which causes the patient much discomfort, and which will be best relieved by the use of the bath, as above directed ; conjoined with anodyne applications to the part, or the nitrate of silver in solution ; the best mode of applying which, is by



means of a bent glass tube of this kind, of about an inch in diameter, which the patient can introduce and manage for herself ; all that is necessary is, that she should lie on her back, and introduce the tube as far as its curvature, and then pour into the upper end, the medicated solution, which will immediately pass to the os

uteri, and can be retained there, as long as is necessary, the tube filling the vagina sufficiently to prevent its flowing away, which is a great advantage, above all other methods with which I am acquainted, for applying lotions to this part.*

The patient should be strictly enjoined to avoid every thing that could stimulate the uterus, such as riding on horseback, &c. ; but, especially, she should refrain from sexual intercourse. I need scarcely add, that the greatest care and moderation will be essentially requisite in the quality and quantity of the patient's diet. Wine, if used at all, should be of a very mild kind, and very sparingly taken ; and the same rule should apply to malt drinks ; the stronger kinds of ale and porter should be altogether prohibited.

* I have used these tubes, both straight and curved, to suit different purposes, with my patients, for some years ; and find them greatly superior to every kind of syringe, or other contrivance for making applications to the os uteri. I wish to suggest, that if the fluid is to be used of an increased temperature, a metal tube should be substituted for the glass one, which would be in danger of cracking, and perhaps injuring the patient.

No circumstance connected with the treatment of this affection requires more scrupulous attention, than the regulation of the patient's habits and mode of living ; indeed, if this be not very carefully managed, all other measures will most probably be defeated.

This is, perhaps, of all others, the case, in which, extirpation of the part might be expected to be successful ; but I could not recommend it, because the operation is a very formidable one, and I know the affections to be curable, without it ; besides, we have no means of accurately determining whether the taint is really thus isolated, or whether other parts are not already contaminated ; so that, we run the chance of only obtaining that equivocal triumph, in which, an operation is blazoned forth, as being crowned with brilliant success, while the patient dies of the disease for which it was performed.

I shall now subjoin the particulars of some cases of this affection, with their treatment and results.

CASE I.—Mrs. S. : I saw this lady, at the request of Mr. T. Burke of Camden-street, on the 24th August, 1833. She was in her 47th year, had had six children, and had encountered much domestic anxiety. She was suffering severe pain, for the last nine months, in the region of the uterus, in the small of the back, and down the thighs, with occasional profuse hæmorrhages, alternating with sero-mucous discharges. A vaginal examination detected well marked morbid alterations in the uterus, the orifice of which was irregularly notched, tumid, and with several nodules of scirrhus hardness projecting all around its margin ; and the posterior wall of the cervix was so much thickened, that, when felt from the rectum, there was a distinct prominence of the part, with very painful sensibility ; she had lost her appetite, was losing her flesh, got little, or no sleep, and was in great distress of mind, about the state of her health.

The treatment was commenced by leeching, and the use, both internally and externally, of hydriodate of potash and iodine, and of anodynes ; subsequently, the symptoms not yield-

ing, her system was brought, moderately, under the influence of mercury, and so kept for some time; lastly, she took carbonate of iron with hyoscyamus and conium; counter-irritants were used; the leeching was frequently repeated; the hip-bath was tried, but it so decidedly made her worse each time, that it was given up. After several months of continued treatment, she was perfectly cured of the uterine affection, and has now been well for more than seven years.

At one time, during the earlier part of her treatment, this patient suffered much, from increase of volume in the breasts, which became, at the same time, excessively painful, and exhibited a remarkable change in the condition of the areola.

Mr. B. this day, Nov. 29, informs me that the healthy condition of the uterus was ascertained by him, the day before yesterday.

CASE II.—Mrs. B., aged about 35 years, was a member of a family, amongst whom there had been a very extraordinary predisposition to cancerous affections; she had had three children, and one of her labours was severe. When I first saw her, which was in May, 1837, she complained of lancinating pains in the loins, back, and thighs, dysuria, bearing down, with irregular sanguineous and other discharges; and, on examination, the os uteri was tumid, uneven, gaping a little, with its margins irregularly nodulated, and, in one spot, there was a deep cleft, as if the part had been torn; there was no discoverable increase in the volume of the uterus, nor any consolidation of it with the surrounding parts. She was put, gently, under the influence of mercury, and afterwards, treated with iodine and iron, baths, &c., under which plan, the symptoms were completely relieved for several months; but on September 16th, 1838, my attendance was again required, and I found all the former symptoms had returned with increased severity; and on examining the os uteri, its condition was more unfavourable than on the former occasion; the nodules had become harder and more prominent, and the whole of the lower part of the cervix had increased in size, and was much

congested with blood ; there was, also, a tumour, apparently of the ovary, in the right iliac hollow, where there was considerable tenderness ; leeches were now applied directly to the os uteri ; and she was put under the use of mercury in alterative doses, but not so as to induce its specific action on the system. The leeching was repeated, both internally and externally, and then iodine was given, and afterwards, iron for several weeks, with occasional applications of counter-irritants.

On the 23rd October, the note of her case was, “ovarian tumour much diminished and the tenderness almost gone ; the cervix uteri less engorged ; but tubercles still hard and prominent, but not so sensitive, and she suffers less pain ; has menstruated once, quite regularly, while taking the small doses of mercury ;” the specific action of this remedy was now induced by blue pill, with iodine and extract of opium, and kept up for some weeks, being accompanied by leeching, baths, &c., and followed, as already stated, by the use of iron, iodine, and other means, as occasion appeared to require, and the result was, the complete removal of the complaint ; and I am now informed, by her medical attendant from the country, that she continues perfectly well.

CASE III.—Mrs. G., about 35 years of age, married, but without children, came to town to consult me, in November, 1838. I found her complaining of sharp, lancinating pains, shooting through the centre of the pelvis into the small of the back, and along the loins in front, especially at the left side, which was very tender on pressure, where the pain appeared to pass out, along with the anterior round ligament of the uterus, and down the thigh and leg ; accompanied with numbness, and even decided lameness and loss of power of the limb, there were irregular sanguineous and other discharges, with irritation of the bladder. Her appetite was very much impaired, and she was losing flesh ; her sleep was broken, partly, by the pain she suffered, and partly, also, by her intense anxiety of mind, about the state of her health.

On examination, I found a fulness in the left iliac hollow, with considerable tenderness on pressure ; but, I could not detect any defined tumour. The os uteri was irregular in its form ; its margins hard, and rendered very uneven by the projection of several well defined small nodules, having all the firmness of true scirrhus, and very sensitive to pressure, which she said drove the pain out through her back, into her left side and thigh, and up to her stomach, giving her a sensation as if she were about to vomit, or retch. The lower part of the cervix uteri was a little increased in volume, and, when seen through the speculum, was almost purple from vascular congestion, and the temperature of the part was decidedly above the natural standard.

The treatment adopted was very nearly the same as that of the last case. Leeches were applied to the os uteri, and over the left side, where a small blister was kept open for several days, and on two, or three occasions, other counter-irritants were also applied, and the system was brought, gently, under the influence of mercury, and so kept for some weeks ; afterwards, iron and iodine were used, by friction and internal use, with warm baths, tonics, &c.

There was such a decided amendment by January, that she went home, and the treatment was directed by letter till April, 1839, when she came to town, and I found the os uteri almost restored to its healthy state ; and, six months afterwards, it was completely so, and still continues, of which I satisfied myself while writing these observations, November, 1841.

One other case, in which the symptoms were well marked, I shall only refer to, for the purpose of mentioning, that since the removal of the affection, the lady has borne three children.

Having had several opportunities of knowing, that cancerous affections of the uterus do not prevent conception, which supplies fuel to the flame already kindled, I think abstinence from connubial intercourse cannot be too strongly insisted on, until full time shall have elapsed to allow of the adoption of efficient treatment, not only for the removal of the morbid organic con-

dition of the organ, but also, for the subsidence of the increased irritative susceptibility which must remain after such alteration.

Early in 1839, I saw a lady, aged about 40, from the North, who had been, more than two years, labouring under this disease, during which time she had been pregnant and prematurely delivered, and was again so, a second time, when she came to town to consult me. Each time, pregnancy was followed by a great increase of her sufferings, and when that period arrived, at which distention of the lower half of the cervix began, the irritation became so great, that labour was prematurely excited. I understand she has been pregnant a third time, with the same result.

In October, of the same year, I saw, in consultation with Dr. Apjohn, another lady, from the West, in whom, this condition had evidently existed for some months, and who, after submitting to treatment, for a short time, in town, became pregnant, soon after her return to the country, and went to her full time.

My friend Dr. White, of Knock, county Clare, under whose care this lady has long been, has just sent me an account of her progress, which, as containing many particulars of interest, I shall give in his own words.

“ *Thornberry, Knock, Dec. 1st, 1841.*

“ When Mrs. — left Dublin (about two years since) she continued, for about three months, as you then saw her, after which, she became pregnant; during the early part of her pregnancy, she appeared to get better in health, except that the lancinating pains continued, and for the last two months, her legs became numbed, and she was unable to walk; at the time of her delivery, I could feel the right ovary enlarged and uneven, the os uteri was thickened, hard, and uneven, and there was considerable hæmorrhage, which continued for some hours, in consequence of the imperfect contraction of the uterus; since then, (now a year) she has been gradually growing worse, *the menses have appeared regularly*, but more profuse than natural, and

there has been constant fluor albus ; for the last month, the discharge has become, sometimes, very abundant, sanious, and offensive, at other times, it is ichorous, with a yellowish tinge, the os uteri is patulous, uneven, and hard, and there is considerable tenderness in the hypogastrium, particularly at the right side the legs are quite paralyzed, she is, almost entirely, confined to bed, and the pain is very violent ; for the last two months, she has had a constant spitting of thick mucus, which is very distressing, the right ovary can be felt through the integuments, but has not increased in size, for the last year, but I think the uterus has ; as to the treatment, it has been latterly, chiefly with a view to relieve suffering ; no plan of treatment that has been, as yet, tried with her, appears to have any useful effect.

“ Very sincerely your’s,

“ HENRY WHITE.”

With such evidence before us, I need scarcely observe, that while, on the one hand, experience teaches us, that the existence of a cancerous affection of the uterus does not prevent conception, so, on the other hand, we should recollect, that the unequivocally ascertained condition of pregnancy ought not induce us to exclude from our mind, the possibility of some organic affection ; in addition to the evidence, which I have here, and elsewhere* set forth on this point, I may mention two other cases strongly illustrative of such a combination. In one, which I saw in consultation with my lamented friend, the late Dr. W. A. Walker, in the month of October, 1837, the woman, who was under forty years of age, had miscarried twice, in the fourth, or fifth month, within three years ; the last miscarriage having taken place within three months of the time of my seeing her ; on examination, I detected the disease of cancer uteri fully established and far advanced.

In the other instance, which I saw in consultation with Surgeon Lynch, the patient, aged 39, had her attention drawn to

* See an Exposition of the Signs of Pregnancy, &c. &c., pp. 192-3.

her state of health, only a short time previously, by profuse and foul discharges, which, as she said, she was uneasy about, because they might injure her child, which she was then suckling, and latterly she also had had some pain. On examination, the os uteri and part of the cervix were absolutely gone by ulceration.

In this case, I may observe, that arsenic procured great mitigation of the pain, though it did not arrest the disease.

Such is the account, which I have deemed it my duty, to bring before my professional brethren, of a form of disease, which, I am perfectly convinced, is the first stage of cancer uteri, into the confirmed and incurable form of which hopeless disease, it will most assuredly run, if not arrested by appropriate treatment ; which, I know, from experience, we shall, often, have it in our power to apply successfully, if we pay sufficient attention to the investigation of the symptoms which accompany this early stage of its existence.

I beg to add, that I have not, I think, formed my opinion on this matter hastily ; it has engaged my attention, anxiously, for more than ten years, during which, I have seen and treated several such cases ; and of those more particularly described in this paper, one has been going on well, for seven years, another, for five, another, for three, and another, for two years and a half.

In conclusion, I may observe, that whatever opinion any one may form on the *theory* of the question, as to the exact nature of the affection (on which I myself entertain not the *slightest doubt*), one thing, at all events, is certain, that an affection of a most suspicious character, which entails great present suffering on the patient, with a fearful apprehension of something worse yet to come, may be removed by the means which I have enumerated, without doing injury to the patient's constitution, or inflicting on her, any additional bodily suffering, by operation.

I am myself convinced of the truth of the following propositions, and sincerely hope, that such may, also, be the result of the experience of others, hereafter :

1. That the affection here described, is the first stage of cancer uteri.

2. That its existence is indicated, by symptoms, and organic changes sufficiently marked to attract our attention, and cause its discovery, on examination.

3. That if not arrested, *promptly* and *decidedly*, it will pass into an incurable condition.

4. That it has been, and, therefore, can be, so arrested, and cured, by suitable treatment, and the patient saved, from the lingering agony, to which, she must otherwise fall a victim.

Before concluding these observations, I wish to suggest, that in affections of this kind, and more especially in the early stage of them, we should carefully avoid disclosing to the patient, *unnecessarily*, our opinion of the nature of her disease ; for although willing to yield my full assent to the propriety of the maxim laid down, by a late eminent, and highly gifted practitioner of this city, that “ a physician must not practise deception, even to forward the interests of benevolence,” I am yet persuaded, that a strict reserve, on some points, is not inconsistent with proper candour ; and, that where the free communication of our opinion, or our naming a disease, cannot, in any way, conduce to the adoption of a more beneficial mode of treatment, but, on the contrary, must have only the effect of depressing the patient’s spirit, and adding despair of mind, to agony of body, I think unreserved candour becomes cruelty. This observation applies, with peculiar force, in the case of women labouring under cancer uteri ; they will hear, with calmness, that their disease is formidable, and, most probably, incurable ; they will, with astonishing fortitude, make up their minds to endure the tortures imposed upon them ; they may know, and will say that they know, they cannot recover, and yet, they shrink, with terror, from being told that they have *cancer* ; nay, even though they may suspect, or think so themselves, they seek to shut out, and put away from them, the irrevocable sentence of death, by such a disease, in the idea of which, there is something

peculiarly revolting to our nature; and in the minds of many, its horrors are fearfully aggravated by a persuasion, that they are likely to entail it on their family.

Dec. 6, 1841.

Postscript.—While these pages were passing through the press, my attention was called, by my friend, Dr. Greene, King's Professor of the Practice of Physic, to a case, which afforded a most satisfactory and decisive illustration of the accuracy of the above account of the pathological character and history of this affection. A woman, aged 45, died of carcinoma recti, under his care, in the Whitworth Hospital, and, on examination, while the fundus and body of the uterus were found quite free from the disease, the lower part of the cervix and the os uteri presented precisely the characters I have here described, especially that of the feel, as if there were grains of shot, or sharp gravel, imbedded in its substance. Dr. Greene having, most kindly, placed the specimen at my disposal, I brought it before the Pathological Society at their last Meeting, December 11th, where it was examined, and its peculiar characters recognized by a great number of the members. I need hardly add, that it will be carefully preserved, and deposited in my museum, for the inspection of others.

Dec. 13, 1841.

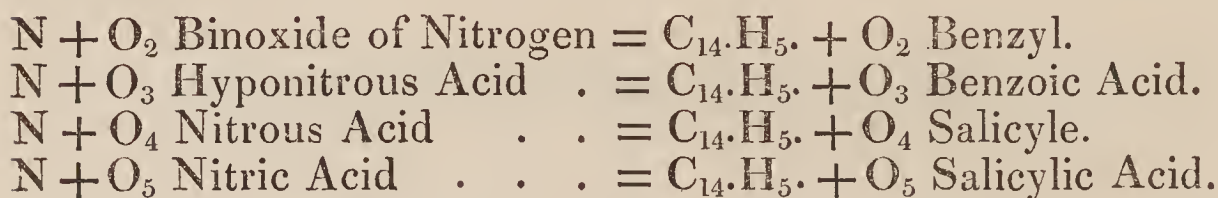
BIBLIOGRAPHIC NOTICES.

Elements of Chemistry, including the most recent Discoveries and Applications of the Science to Medicine and Pharmacy, and to the Arts. By ROBERT KANE, M.D., M.R.I.A., Professor of Natural Philosophy to the Royal Dublin Society, Professor of Chemistry to the Apothecaries' Hall of Ireland, &c. &c. Part III. with Contents and Index, completing the work.

THE concluding part of this excellent work is principally devoted to the chemistry of organic bodies; and this difficult department of the science, which has acquired a totally novel aspect, through the multiplied and unexpected discoveries of cotemporary inquirers, is here treated in an eclectic spirit of induction, vainly to be sought for in more pretending volumes. A cautious exercise of discriminating judgment has been rendered the more necessary in organic chemistry, not only by the accumulation of *false facts*, so liable to encumber a rapidly progressing experimental science, but also by the hasty generalizations too generally entertained by many of the most eminent of living chemists. We will briefly notice some of these hypotheses, supported as they are, by numerous well-ascertained facts and much ingenuity, in order that our readers may the better appreciate, the skill with which Doctor Kane has separated uncertainty from truth.

“Organic chemistry,” says M. Liebeg, “is the chemistry of compound radicals;” and in an attempt to assimilate the phenomena of organic substances to the laws of inorganic chemistry, he imagines the existence of a number of substances, that have never been isolated, and that an hypothesis however plausible, yet so unsupported, can never warrant. In the work before us, we find these suppositious radicals admitted, as far as they are calculated to render phenomena more explicable, or the recollection of formulæ more easy; to go farther than this, would be to transgress the limits of just generalization. Even with this limited employment, the

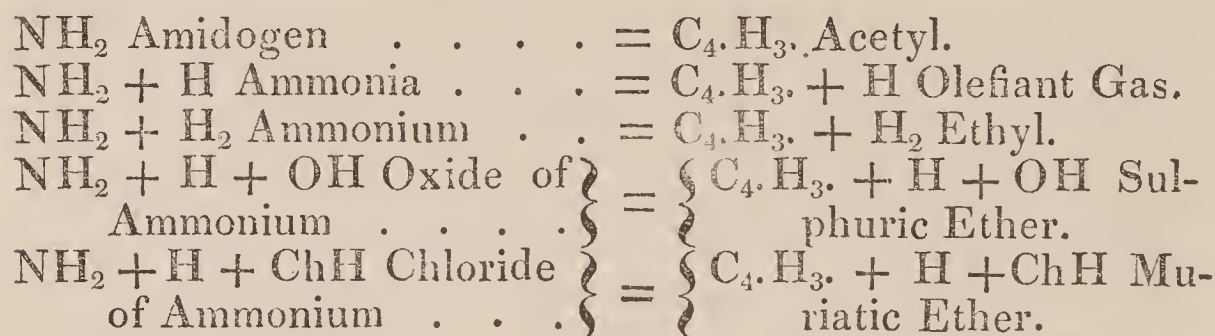
analogies presented by organic to inorganic substances are sufficiently striking. When we compare the benzyl and salicylic series, with the compounds of nitrogen and oxygen, we find



And the oxygen of benzyle is capable of being replaced by nitrogen or sulphur pointing to the probability of C_{14}H_5 being the true radical, according to which supposition the analogy becomes still more complete.

But we may be permitted to inquire, what is the necessity for this multiplication of radicals? And, as Doctor Kane admits, the view of Berzelius, just referred to, namely, that C_{14}H_5 is the most probable radical, we regret that he has not boldly adopted an opinion, preferable for its simplicity, and equally adapted to the hypothesis.

Another example of the same kind, we find in the analogy existing between the ammonia series on the one side, and the acetyl and ethyl series on the other; thus we have



Doctor Kane has already proposed in his memoir on the compounds of ammonia—a memoir that in novelty and comprehensiveness, has never been surpassed—that ammonia ought to be considered an amiduret of hydrogen ($\text{NH}_2 + \text{H}$); ammonium, a dinamiduret of hydrogen ($\text{NH}_2 + \text{H}_2$); and sal-ammoniac, a chloro-amiduret of hydrogen ($\text{Ch.H.} + \text{NH}_2\text{H.}$). Why not on similar principles consider olefiant gas to be an acetyluret of hydrogen; sulphuric ether, an oxy-acetyluret of hydrogen ($\text{O.H.} + \text{C}_4\text{H}_3\text{H}$), and muriatic ether, a chloro-acetyluret of hydrogen ($\text{Ch.H.} + \text{C}_4\text{H}_3\text{H}$)?

In pp. 944, 945, the author has brought arguments against this analogy, which do not appear to us conclusive, and by admitting it, we are saved the supposition of an unnecessary radical “Ethyl.” This view, which is nearly identical with the one lately agreed to by MM. Liebig and Dumas, is a

curious return to the old hypothesis of M. Thenard, namely, that ether is a compound of olefiant gas and water.

Whatever opinion we may form with respect to the expediency of reducing as much as possible the number of suppositious radicals, there cannot be a question, however, as to the propriety of confining an elementary treatise to the expression of those views, usually entertained by chemists; "that which we wish to attain," says M. Liebig, "by the employment of compound radicals, is a mean of extending to certain groups of bodies, the principles which guide us in the study of mineral chemistry; as to their application, the points of view under which we may consider them are certainly very various, but we ought to prefer those only which are not contradictory among themselves, and which explain phenomena in a logical manner." We confess that we think that our author has been more felicitous in the application of these principles, than the eminent philosopher who proposed them.

Another difficult subject, particularly connected with organic chemistry, which our author has treated with critical discrimination, is the theory of types, advanced by M. Dumas; an hypothesis depending in a great measure on the laws of substitution, proposed by the same eminent chemist. Since the time of Lavoisier, oxydation was regarded as a minor instance of combustion; thus the action of nitric acid on sugar was looked on as an oxydation of some of the carbon and hydrogen, which being removed in the form of carbonic acid and water, left a greater proportion of oxygen in the residue, which thus became an acid; but later investigations showed that the oxygen served a double function; that it eliminated some elements, and became likewise fixed in the residue. Gay Lussac long since ascertained, that when wax is exposed to the action of chlorine, hydrogen is liberated in exactly such proportion that the resulting hydrochloric acid is the same volume as the original chlorine; therefore, one half the chlorine liberated hydrogen, the other half replaced it in the composition of the wax. Dumas repeated this experiment with oil of turpentine, and arrived at an analogous result. These observations led to researches, which terminated in the enunciation of the following laws, proposed by M. Dumas, in his "Chemistry applied to the Arts:"

1. When a hydrogenated body, is submitted to the dehydrogenating action of chlorine, bromine, iodine, oxygen, &c., for each atom of hydrogen that it loses, it gains an atom of chlorine, iodine, or bromine, or an half-atom of oxygen.

2. When the hydrogenated body contains oxygen, the same rule is observed without modification.

3. When the hydrogenated body contains water, the hydrogen of this latter is not replaced ; but from this point, the elimination of hydrogen is compensated by an equivalent replacement.

Since the publication of his great work, Dumas has given a more extended development of his views in a distinct memoir. In this he proposes to resolve the following questions :

1. Can we in every compound replace, equivalent for equivalent, the elements by simple bodies, or by substances that act as such ?

2. Do not these substitutions sometimes effect themselves, without the general nature of the compounds being altered, such products appertaining to the same chemical type as those from which they are derived ?

3. In other instances, do not these substitutions furnish products, entirely distinct from those they are derived, and may not they be considered, under such circumstances, as belonging to the same molecular type ?

4. Is it not possible, so to arrange the nomenclature of organic substances, as that the name of each body may express the chemical or molecular type to which it belongs ?

5. Do not the phenomena of substitution authorize us, to modify to a great extent the value attached hitherto to organic radicals ?

6. Is not the electrical relation attributed to elements of compounds, according to the electro-chemical theory, completely at variance with the phenomena of substitution ?

To these questions, M. Dumas returns answers generally in the affirmative. He says, that not only is chlorine capable of replacing hydrogen, atom for atom, but also oxygen, azote, and even carbon. The replacement may take place not only by simple substances, such as chlorine, but also by those compounds that act as simple bodies. M. Dumas is eloquent in praise of his discovery. "The law of substitutions," he exclaims, "is a source of discoveries nearly inexhaustible ; it guides the hands of those chemists who confide in it ; it rectifies their errors, by showing the cause ; and among a multitude of possible but uncertain reactions, it points out some, which are certain, easy to produce, and of the highest interest. This path, that the law of substitutions developes to the eyes of chemists, so rich in realizable facts, so full of accessible discoveries, justifies a phrase used by M. Ampere.

In speaking with him of the laws of substitution, he wished to prove it identical with ordinary equivalent reaction, but when I demonstrated what I had already been led to by its assistance, 'ah! my friend,' he exclaimed, 'you have found out labour for your whole life.'"

There is, in this quotation, developed an enthusiasm capable of leading to brilliant discovery, or ridiculous absurdity. We accordingly find a mixture of both these results, in the extremes to which M. Dumas pushes his favourite theory. Berzelius, the father of chemistry, has seen the errors into which one of his most ingenious disciples has been led, and in a late paper, has treated with goodhumoured raillery, some of the most prominent inconsistencies which the hypothesis of M. Dumas exhibits. We will quote the substance of some of his criticisms.

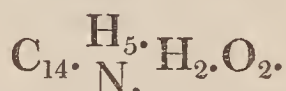
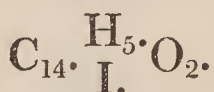
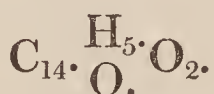
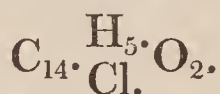
To represent here what M. Dumas intends by a chemical type, we report some examples which he has furnished himself, written in formula for greater simplicity:

Formic Acid	. . . .	$C_2.H.O_3.$
Methylic Oxide	. . . .	$C_2 O H_3.$
Chloroforme	. . . .	$C_2 H Ch_3.$
Carburetted Hydrogen	. . . .	$C_2 H H_3.$
Perchloride of Carbon	. . . .	$C_2 Ch Ch_3.$

In each of these compounds, there are the same number of equivalents, six in each case; it will be observed, that according to the theory, formic acid differs from methylic oxide in having the oxygen in place of the hydrogen, and hydrogen in place of the oxygen. When there are six atoms but only two elements the arrangement is equally easy; thus carburetted hydrogen differs from formic acid, simply in having three atoms of oxygen replaced by three atoms of hydrogen; and perchloride of carbon differs from methylic oxide in having an atom of oxygen replaced by an atom of chlorine, and three atoms of hydrogen by three atoms of chlorine. But M. Dumas has as yet omitted to point out, the full extent of the power possessed by the theory of substitutions. We have seen that all the elements of an organic compound can be changed, even the carbon; why not replace the two atoms of carbon in perchloride of carbon, by two atoms of chlorine, and say that $Cl_2 Ch Ch_3$ is in other words, but methylic oxide in which all the elements have been replaced by chlorine!!

It is well known, that a difference of opinion existed until lately between MM. Dumas and Liebig with respect to the

proximate composition of ether; the latter considered it to be the oxide of an organic radical, the former supposed it to be a compound of etherine (C_4H_4 .) and water. After an oral debate between these distinguished chemists, they both agreed to the first of these opinions, and M. Dumas communicated in their common names to the Academy of Sciences, an opinion on organic bodies, considered as containing compound radicals, combined with oxygen, the halogenic bodies, &c. In this memoir it is stated, that by organic radicals are meant, certain compounds which can act in the manner of simple bodies, and which enter like them into combination, and follow the same laws with the different bodies in nature. To render the distinction between a radical and a type plain, he gives as an example the oil of bitter almonds, which he says is a type, in which we can substitute for an equivalent of hydrogen one equivalent of chlorine, of bromine, of iodine, of oxygen, or of amidogene without the type being altered :



But the system $C_{14} \cdot H_5 \cdot O_2$ is a radical and not a type, for we can replace it by a simple element, say a metal. This places it out of the theory of types, which requires *the same number of equivalents*. Now, it is amusing to find, that although an organic radical cannot be considered an invariable group, and a type must, according to the hypothesis; yet it is considered no anomaly, the replacing of an atom of hydrogen, by two atoms of hydrogen and one of nitrogen. "The law of substitutions," says M. Berzelius, "is in truth the product of a very liberal legislation, I had almost said a *radical* one."

From what has been shown, it may be perceived that the theory of substitutions and of types is, as might be expected of any doctrine emanating from the genius of M. Dumas, replete with novel facts, and ingenious reasonings; but that it has, to a certain extent, outstripped the cautious steps of induction, and that it requires, to pursue the humorous figure of Berzelius, a conservative policy to be observed towards it.

We can now comprehend the difficulties which Doctor

Kane must have experienced in the compilation of the part of his work devoted to organic chemistry. It was necessary for him on the one hand to give a faithful representation of the existing opinions entertained by his most eminent contemporaries, and on the other to sift with the strictest scrutiny, all that was not logically deducible from the premises. And this course he had to steer in such a manner as to render every thing plain to the merest tyro, whilst preserving a necessary conciseness, and yet maintaining the dignity of science. These conditions Doctor Kane has rigorously fulfilled.

We think it is in the remarkable work in which Berzelius shewed the saline composition of minerals, that he says, "isomorphism prevails in the mineral kingdom, isomerism in the organic." It is, indeed, a curious thing to observe, the vast variety of compounds existing in organic nature, formed as they are of so few elements. The acids, resins, oils, gums, starches, sugars, all composed of oxygen, hydrogen, and carbon; and many of these genera differing from each other, less in composition, than do, frequently, the species of the same genus. Doctor Kane has advanced an exceedingly ingenious hypothesis connecting isomerism with dimorphism. We quote the following passage from p. 376:

"As we have thus traced a gradual transition from the feeblest indications of dimorphism, to the complete difference of structure and properties constituting isomerism, it becomes an interesting question, whether we may not have occasion to retrace our steps, and to seek in those bodies which we have hitherto considered as only differing in physical properties, for evidence of difference in chemical arrangement. May not a simple substance, as sulphur or antimony, enter into combination with equivalents of different weights, and so resemble oil of turpentine and oil of citron; and may not this difference in equivalents be the source of diversity in form? When sulphur crystallizes in the form of bisulphate of potash, may we not reasonably suppose that its molecules are grouped into a complex figure, like that of the compound salt, and that its equivalent is, in proportion, greater than when it crystallizes as a simple body?

"We say that two ordinary equivalents of manganese replace one of chlorine, but is it not really that when manganese replaces chlorine, its equivalent is double what it is when it replaces hydrogen or copper? Manganese replacing chlorine, is to manganese replacing copper, what oil of turpentine is to oil of citron; and hence, it may be isomeric with itself, for the functions it performs in its two modes of combinations, are the most widely different possible. The bisulphuret of iron, in its cubical form, is FeS_2 and like MnO_2 , is decomposed only by a red heat, when it parts with one-third of its volatile constituent; but in its rhombic form, may not its equivalent be Fe_2S_4 resembling ClO_4 , and like it, be decomposed by the slightest causes?"

Reference is made in the foregoing extract, to a most interesting series of researches, made during the last year by MM. Subeiran and Capitaine, assisted by M. Biot, on the camphenes. The results are so important that we gladly extract the following summary from Doctor Kane's work, p. 963 :

“The following table contains a view of the most important oils not containing oxygen :

Plant yielding the Oil.	Sp. Gr. as liquid.	Boiling Point.	Formula.	Sp.Gr. as Vapour.	Circular polarizing Power.
Citron . . .	0·847	343°	All these oils have the same composition, expressed by the formula C_5H_4 .	All these oils give vapours with the specific gravity, $= 4766$.	+ 80° 9, right.
Copaiva . . .	0·878	473°			+ 34° 2, left.
Parsley . . .	. . .	410°			. . . . .
Juniper . . .	0·839	311°			— 3° 5, left.
Savine . . .	. . .	315°			. . . . .
Cubebs . . .	0·929	. . .			— 40° 1, left.
Black Pepper .	. . .	. . .			. . . . .
Bergamotte . .	. . .	. . .			+ 29° 3, right.
Turpentine . .	0·864	315°			— 43° 3, left.

“Although these oils have all the same per cent. composition, they differ in the formula of their atom ; that of turpentine being $C_{20}H_{16}$. ; that of cubebs, $C_{15}H_{12}$, and all the others being $C_{10}H_8$. Although even as given in the table, they constitute a remarkable group of isomeric bodies, yet each one is capable of changing its molecular condition in various ways, and thus generating other bodies, still more closely isomeric, as they differ only in their action on polarized light. Of these changes I shall describe only those of oil of turpentine, which will serve as an example.

“By contact with oil of vitriol, oil of turpentine changes into another liquid, which has the same specific gravity both in the state of liquid and of vapour, the same boiling point, and the same atomic weight, but is totally without action on polarized light. This new liquid is called *terebene*. If the oil of turpentine be acted on by muriatic acid gas, it combines therewith, forming a dense liquid, which is muriate of terebene, and which has no action on light ; but another portion of the turpentine unites with the muriatic acid, unchanged, and forms a solid, which crystallizes in fine white prisms, and from its remarkable odour, is called *artificial camphor*. In this solid the oil of turpentine preserves all its action upon light, and for convenience it may obtain the name *camphene*, and the solid is then *muriate of camphene*. Now, if this solid be distilled with lime, the muriatic acid

is removed, and an oil obtained, which differs from camphene only in having no action on light, whilst it differs from terebene in forming with muriatic acid a solid product. This oil is termed *camphilene*, and the *muriate of camphilene* is distinguished from the muriate of camphene, in being quite destitute of rotatory power. From none of these products can the true oil of turpentine, or camphene, be regenerated. There are thus three forms of oil of turpentine, of which two give solid compounds, and the third a liquid, with muriatic acid; two are without action on light, but the camphene rotates powerfully to the left. With chlorine they all give heavy liquids, all of which have the formula $C_{20}H_{12}Cl_4$, but are distinguished from each other by their action upon polarized light; the *chlor-camphene* presenting the anomalous character of a rotatory power to the right."

We may here remark some curious observations lately made on the camphor obtained from the dryobalanops camphora. Doctor Christison sent some specimens of this drug to M. Pelouze; they were of two kinds, solid and liquid; the first cut out of the trunk (camphor of Borneo); the second obtained by incision from the young twigs (liquid camphor). The first is $C_{10}H_9O_1$, being artificial camphor, in which the chlorine is replaced by oxygen; the second $C_{10}H_8$; the same as oil of turpentine, but differing from it, according to M. Biot, in its effect on light. Anhydrous phosphoric acid reduced the first to the second. The camphor of Borneo may be converted into ordinary camphor by the dehydrogenating action of nitric acid.

Connected with the subject of isomerism, is the influence of heat on tartaric acid. See p. 999.

"When tartaric acid is cautiously heated, it fuses into a mass like gum, and gives off water. In this state it combines with bases forming salts quite different from the tartrates; it retains its bibasic character, but its atomic weight is increased to one and a half-times that of tartaric acid; its formula being $C_{12}H_6O_{15} + 2 \text{ Aq.}$ It thus constitutes *tartralic acid*; it does not crystallize, and in solution gradually passes back into tartaric acid. If the tartralic acid be kept long melted at 360° , it abandons still more water, and forms *tartrelic acid* in which the bibasic character remains, its formula being $C_{16}H_8O_{20} + 2 \text{ Aq.}$ This acid is characterized by forming insoluble salts with lime and barytes, thereby differing from the tartralic acid. If the heat be still longer kept up, a porous white mass is formed, which is insoluble in water and in alcohol. It is *anhydrous tartaric acid*; its formula is $C_8H_4O_{10}$. If left long in contact with water it changes successively into the tartrelic, tartralic, and common tartaric acid. This change is produced more rapidly by boiling with a solution of potash. This substance appears to hold the same relation to tartaric acid, that the white sublimate does to the proper lactic acid."—p. 890.

The analogy which these changes present to the isomeric acids of phosphorous, are very striking, and bear out Doctor Kane's views as to the connexion between dimorphism and isomerism in a forcible manner. Berzelius has made some remarks on these discoveries of M. Fremy, and his opinions correspond remarkably with our author's. It is very probable, that in anhydrous sulphuric acid, the three atoms of oxygen are placed on the same plane, surmounted by the molecule of hydrogen, constituting a regular tetrahedral figure (we speak in the language of the atomic theory for convenience). But in the ordinary sulphuric acid (SO_3HO) it is unlikely the elements are so arranged; it is more probable that the four molecules of oxygen constitute a four-sided plane, above and below which the atoms of sulphur and hydrogen are situated, and therefore in this case we may suppose the proximate molecule to be octohedral. In the acid of Nordhausen ($2\text{SO}_3 + \text{HO}$) a more complicated arrangement must exist. The particular dispositions we have stated, may not be the actual ones; but in every case it must be true, that the forms of compound molecules vary with the number of simple atoms contained in them. Now, the alteration from one of these forms to another must present a certain amount of resistance, which requires a particular degree of force to overcome it. When phosphoric acid is combined with three atoms of water, its compound molecule must have a different figure from what it possesses when composed of one atom of phosphoric acid, and two or one of water; and the conversion of these forms into each other must occur with greater or less difficulty. If then we suppose bibasic phosphoric acid ($2\text{HO} + \text{PO}_5$) to be presented to three atoms of base, we can easily imagine two separate forces to be put into operation; one, an affinity acting between the acid and the three equivalents of base; the other, the quiescent affinity of the acid for the water, and the difficulty of altering the existing figure of the compound molecule. If, under such circumstances, the divellent affinity be but little stronger than the quiescent, it is easy to conceive that a mere substitution of the two equivalents of water by two of the base (a substitution which requires no alteration of figure), may be more readily effected than the formation of the tribasic salt, and that this is, therefore, the change which would immediately occur. In like manner we find, that tartaric acid gives off at 200°C . one-fourth of its water; it becomes a compound of the elements of three of tartaric acid, and four of water; in this state, the form of molecule must be different from that of ordinary tartaric acid; and, when entering

into combination with bases, it finds it easier to exchange its water, for so many equivalents of base than to return to the molecular arrangement which it had just abandoned. As a necessary consequence we find its atomic weight to be increased. We look on these phenomena to be a beautiful confirmation of Doctor Kane's views.

We must now bring this notice to a close; but we cannot do so without expressing our gratitude to Doctor Kane for the valuable boon which he has conferred on chemical science. Amidst the paucity of good text books on any branch of medical knowledge, Doctor Turner's *Elements of Chemistry* (in its day) stood preeminent. It was copious, comprehensive, illustrative; not fatiguing with misplaced minutiae, nor sacrificing science to a degraded appetite for false facility. We have examined the several works which have since striven to supply its place, some possessing peculiar merits, but we have met none so well calculated to arouse a spirit of chemical inquiry among students, and to supply their wants, as the subject of this review.

Tic Doloureux, or Neuralgia Facialis, and other Nervous Affections. By R. H. ALLNATT, M. D., A. M., &c.

PERHAPS in the whole circle of medical science there is no subject of greater interest to the philosophic inquirer than the interdependence of local disease and constitutional disturbance. That local disease causes constitutional suffering did not escape the observation of the earliest surgeons, nor that often the latter was to be relieved, only by the removal of the former by any means, and at any expense; but it was reserved for later times to trace the local affection to the state of the constitution, and to attempt its removal, not by topical applications, nor by an operation, so much as by a renovating process effected in the bodily functions generally. It is the application of this beautiful principle, which has so much diminished the number of operations and changed the surgeon from the mere operator of former days, whose glory lay in his knife, and whose boast was, like that of the priests of Baal, in the number of his victims, into the accomplished scientific surgeon of our own times.

The essay at the head of this article is a very useful illustration of these views. Taking the affection (neuralgia) as a local one, which may "occur in any part of the body pervaded by the gray or ganglionic nerves;" but whose exciting cause is remote, generally some gastro-intestinal disorder, the author proposes to

attack the local disorder, not by topical so much as by constitutional means. Thus he says,

“The indications to be attended to in the treatment of tic douloureux are, to relieve the irritation of the abdominal viscera, and in cases of long standing, the consequent hyperæmia which may have been induced. For this purpose, I have found the free use of aperients of unfailing efficacy, and I give a decided preference, over all others, to a pill, combining a small quantity of croton oil with stomachic aperients.

“In plethoric habits, and when the constitution has not materially suffered by protracted agony, the aperient plan should be steadily persevered in and carried to its full extent, that is, the patient may be kept under influence of purgation until the pain has subsided.

“The diet, which must be carefully regulated, should consist of light and nutritious food; all indigestible aliment should be avoided, and irritating, spirituous, and fermented liquors absolutely prohibited.

“Exercise in the open air is particularly desirable, as it tends to the equalization of the circulation; not, however, that exercise which consists in the harmonious rolling of a carriage, but brisk walking on foot until a glow is created, and what is still more desirable, horse exercise.

“By these means, and these alone, I have succeeded in curing inveterate cases of tic douloureux in the term of six or eight days, which had withstood for months and years every other method of treatment.

“But suppose a weak and delicate female with anæmia to be the subject of tic douloureux, in whom the periodical functions of the uterus are irregularly performed, or in whom the disorder is complicated with hysteric or other affections connected with an irritable and mobile state of the system; in this case, purgation must be resorted to with great caution, and in very simple and divided doses; still they must be used, and alternated, as occasion may require, with ammonia, steel, the vegetable bitters, sedatives, &c. &c. It is in these instances that quinine and sesqui-oxyde of iron produce such marked and decided relief.

“The question has been frequently asked ‘Can tic douloureux be permanently cured?’ In contravention of the authority of our great names, I answer yes! as permanently and effectually as any other disorder to which the human body is subject. I would in return ask of those who doubt this fact, if hysteria can be cured, continued fever, chronic hepatitis, spasms, convulsions, or any other disease or affection which may occur to the imagination at the moment?

“It is true, it will be said, that we may, by appropriate remedies, cure any of these disorders; but can we ensure the patient immunity from future attacks to the end of his life? The same exciting cause, *cæteris paribus*, operating upon a frame peculiarly liable to a particular form of disorder, in other words, operating upon the idiosyncrasy of an individual, may, undoubtedly, at any future period produce the

symptoms it has before occasioned ; but this I maintain, without fear of contradiction, that by striking at the root of the evil, and not wasting opportunity, in temporizing with inert and more than useless topical applications, tic douloureux is an affection which yields, I had almost said, with peculiar rapidity."

The reader will find numerous illustrations of Dr. Allnatt's views in the little volume before us ; the whole brought forward in a fair and candid spirit. We think Dr. Allnatt's work very creditable to him, and we strongly recommend it to our friends. The style is clear, and, as we think, the conclusions just ; and we trust that the author will be gratified by its success.

Principles of General and Comparative Physiology. By WM. B. CARPENTER, M. D. Second Edition.

THE rapid sale of the first edition of this work has proved most satisfactorily the very high opinion entertained of its merits ; an opinion in which we fully share. It has seldom fallen to our lot to notice a work so comprehensively designed, and so ably and elaborately executed. It is a monument "*ære perennius*" to the author's zeal, talent, and industry, and must rank him with the ablest writers on physiology of modern times. It would be a pleasing task, if our limits permitted us, to enter upon a full analysis of its contents ; but this may not be, and we must content ourselves with indicating the plan of the work and then giving a few extracts.

The first part, by way of introduction, is on organized structures in general, the elementary structure of vegetables and animals, transformation of tissues, &c. ; next, we have a general view of the vegetable and animal kingdoms ; and then we come to general physiology, and special and comparative physiology ; as, for instance, digestion, circulation, nutrition, respiration, secretion, evolution of heat, light, and electricity, reproduction, the nervous system, &c., the whole treated with elaborate care, and exhibiting a masterly elucidation of principles.

The concluding chapter is "of the marks of design in organized structures;" and from this we propose to make a few extracts, as much on account of their importance, as the admirable way in which they are put forward.

"If," says the author, "little has been expressly said upon this subject in the foregoing pages, it is because it has been thought, that when the perfect adaptation that exists between all the minute details of each member of the animated world, and the harmony of the parts they have to perform, in the grand system of the universe, were being explained and demonstrated, it might be safely left to the mind of the reader to draw those inferences, which it is, perhaps, impossi-

ble for any soundly-judging person to avoid making, who is unwarpèd by the pride of human reason, or by that tendency to practical disregard for them, which, in so many instances, is mistaken by the individual himself for a valid argument on the side of disbelief. When we consider the universality of this adaptation, so constant that it cannot be the effect of chance; the beautiful harmony of the details, uninterrupted by the slightest discordance; and the consummate perfection of the whole, so complete as to forbid the idea of a limited power; it seems scarcely possible to arrive at any other rational conclusion, than that the universe, with all that it contains, is the work of an Almighty and Benevolent Creator.

“The adaptation which the physiologist discovers in particular instances may well serve both to awaken his curiosity and to lead him to suspect a pre-existing design. But he will obtain a much more elevated view of the nature of creative Power, if he carry his researches farther. He must disregard for a time, as in physical philosophy, the immediate *purposes* of the adaptations he witnesses; and must consider these adaptations as themselves, but the *results or ends* of the general laws for which he should search.

“Every step which is taken in the progress of generalization, increases our admiration of the beauty of the adaptation and the harmony of the action, of the laws we discover; and it is in this beauty and harmony that the contemplative mind delights to recognize the wisdom and beneficence of the Divine Author of the universe. This, in fact, is one of the highest results to which the exercise of our intellectual faculties should lead; and we cannot but believe that the Creator, in endowing us with these faculties, intended that they should conduct us nearer to the conception of His infinite mind. But, at the same time, the vastness of the prospect thus disclosed can scarcely fail to impress us with the most humbling consciousness of our own insignificance.

“If, then, we can conceive that the same Almighty *fiat* which created matter out of nothing, impressed upon it one simple law, which should regulate the association of its masses into systems of almost illimitable extent, controlling their movements, fixing the times of the commencement and separation of each world, and balancing against each other, the perturbing influences to which its own actions give rise, should be the cause, not only of the general uniformity, but of the particular variety of their conditions, governing the changes in the form and structure of each individual globe, protracted through an existence of countless centuries, and adjusting the alterations ‘of seasons and times, and months and years,’ should people all these worlds with living beings of endless diversity of nature, providing for their support, their happiness, their mutual reliance, ordaining their constant decay and succession, not merely as individuals but as races, and adapting them in every minute particular to the conditions of their dwelling; and should harmonize and blend together all the innumerable multitude of their actions, making their very perturbations sources of new powers. When our knowledge is sufficiently advanced

to comprehend these things, then shall we be led to a far higher and nobler conception of the Divine mind, than we have at present the means of forming. But even then how infinitely short of the reality will be any view that our limited comprehension can attain, seeing, as we ever must in this life, as "through a glass darkly"! how much will remain to be revealed to us in that glorious future, when the light of truth shall burst upon us in unclouded lustre, but when our mortal view shall be purified and strengthened, so as to sustain its dazzling brilliancy."

A Treatise on the Nature, Causes, and Treatment of Erysipelas. By THOMAS NUNNELY, M. D., Leeds.

THIS is a useful work, and one displaying considerable research, and although we may not quite agree with all Mr. Nunnely's views, we find very much to approve.

Under the term erysipelas, the author includes a wide range of subjects; erythema, diffuse inflammation of the cellular tissue, puerperal fever, diffuse inflammation of the peritoneum and pleura, diffuse inflammation of the mucous membranes, diffuse inflammation of the arachnoid membrane, diffuse inflammation of the veins and lymphatics, &c.

We shall give a slight sketch of the author's arguments in favour of the identity of puerperal fever with erysipelas, so that the reader may be able to form judgment as to the mode in which the subjects are handled.

After quoting the authority of Pouteau, Young, Home, Lowder, &c., as to the erysipelatous character of puerperal fever, and the post mortem evidences afforded by Malouin, Tenon, Kirkland, Clarke, &c., he proceeds to class "under distinct heads, the principal facts and arguments which may be advanced," to prove the identity of the two diseases:

"1. Puerperal fever resembles erysipelas, in the nature of the constitutional symptoms, shown throughout the course of the disorder, and also generally in the mode of its onset, as by rigors, sickness, &c. The indications are those of irritation, without corresponding power, the pulse is characterized rather by excessive frequency, than by either fulness or hardness.

"2. The local symptoms during life, and the appearances after death, are, allowance being made for the different situations and textures of the parts attacked, identical, as a comparison of the post mortem appearances in puerperal fever and erysipelas will prove.

"3. The treatment in both forms of the disease must be guided by the same indications; as a rule, in the most decided cases, in neither is it proper to employ active blood-letting: our measures

must vary in their activity according as the disorders prevail sporadically or epidemically, &c. &c.

“ 4. Both forms of the complaint prevail at the same time epidemically.

“ 5. Both forms of the disease arise under the same circumstances, and prevail much at the same season of the year, and during the same kind of weather.

“ 6. Both complaints are characterized, by the great disposition there is to the deposition of pus in various parts of the body.

“ 7. The great danger attending inoculation with the effused fluids, in the examination of the bodies of those who have recently died of puerperal fever, with the almost immediate development of erysipelas in the member inoculated, has already been somewhat at length stated.

“ 8. The two forms of the disease may exist at the same time in the same patient.

“ 9. That puerperal fever and erysipelas may, during life, mutually produce each other in a second person; there appears to be evidence of the most indubitable nature.”

In support of each of these propositions, Mr. Nunnely adduces very extended evidence, and such as must carry great weight, he also meets the various objections which have been made, but still we are not quite prepared to agree with him. It is a subject which deserves the utmost attention and patient investigation, and we are certain that it will not escape the researches of many of our friends in this city, which is not unfrequently visited by this formidable epidemic.

We have great pleasure in recommending Mr. Nunnely's book to our readers, it displays great talent and zeal, it is well written, abounding in learning and sound practical directions.

SCIENTIFIC INTELLIGENCE.

Lime Moxa.—Dr. Osborne has availed himself of the high temperature produced by lime in the act of slaking for the purpose of a moxa. Some quick lime in powder, to the depth of about half an inch, is placed on the skin inside a *porte moxa*, or a strip of card bent together and tied so as to form a circle. Some water is dropped on and mixed with it. In about two minutes the mixture swells and becomes dry, and at the same time a high degree of heat is produced, which, according to some experiments, may amount to 500° Far. This moxa Dr. Osborne considers to be superior to all others; first, from the intensity of the heat, which, by using a larger bulk of lime, may equal the potential cautery; and secondly, from its convenience, not requiring the assistance of any heated substance, and being unaccompanied by the emission of sparks or smoke, which create terror in the mind of the patient. When the quantity of lime applied is smaller than above mentioned, or not kept on long, the result is an appearance resembling that produced by acetic acid, and a thick crust is formed, which separates according as new skin is perfected underneath. When, however, the quantity is as large or larger, and kept on as long as the heat continues, then a complete destruction of the skin ensues, and thus issues may be made of greater depth and in a much shorter time than by the usual escharotics.

In order to ascertain the depth to which this moxa acts, he applies it on the surface of an egg, and then observes the thickness of coagulated albumen formed underneath. This shows the extent to which the serum may be coagulated in the vessels of the part, and which is subsequently separated by ulceration as a foreign body; but the beneficial action of a moxa does not stop here, its superiority as an escarotic or counter-irritant, according to Dr. Osborne's view, consists in this, that the heat produces a contraction and change in the action of the vessels of parts over which it is applied, with great excitement of the absorbents, enabling them to return to a state of health after the failure of all other means, as may be seen from the cases related in Larrey's work on this subject, and as is well known and acted on by veterinary practitioners. In one case, at Mercer's Hospital, it was productive of a very decided change. A female laboured under the symptoms of ulceration of the upper part of the rectum and sigmoid flexure, for above a year, and had con-

stantly most severe pain in those parts on passing her motions, which were accompanied by discharges of purulent and sanious matter. On being examined, the rectum and lower part of the colon were free from contractions, and the fæcal masses which occasionally passed, although productive of great suffering, yet showed that the passage was not considerably narrowed; a lime moxa, which extended to about the size of a crown was applied over the sigmoid flexure, and was immediately followed by a diminution of pain and an almost complete cessation of the discharge; and before the ulcer produced by the moxa had filled up by granulations, all the symptoms of the internal ulceration had entirely disappeared. In a case of commencing softening of tubercles, and in another apparently of purulent infiltration after pneumonia, its effect in putting a stop to the ulcerative process was most decided.

In a case of hip-joint disease, in which there was great pain and consequent loss of sleep, the patient slept well on the following night, and in a few days gained much power over the limb. And in another case of the same disease, which had proceeded to destruction of the joint, and extensive enlargement of the parts around it, a copious discharge of the moxa was followed in a fortnight by a complete subsidence of the enlargement, and a corner of the ulcerated surface is now kept open as an issue, the remainder being allowed to heal under a water dressing. It is to be observed, that the size of the ulcer formed is always much larger than that of the lime applied, in every case having at least twice its diameter.

When the lime is prepared from calcareous spar, the heat produced on the addition of the water is sudden and intense, and the pain is proportionately urgent. For ordinary purposes, however, well selected pieces of lime, from a lime-kiln, answer well if *fresh*, but not otherwise.

Asphyxia, caused by a Morsel of Meat, arrested upon the Orifice of the Larynx.—M. A. Berard presented to the Academy the preparation resulting from the post mortem examination of an old man who died suddenly. This man, who had had an old attack of apoplexy, experienced suddenly, in eating, a sensation of strangulation, and died in a few seconds. A large piece of meat was found in the inferior part of the pharynx, immediately above and behind the laryngeal opening, compressing the cordæ vocales from behind forward. M. Berard remarked, that nearly all the cases of asphyxia, from a like cause, belonged to apoplectic individuals or lunatics, and that consequently it would be very useful to watch them while they were taking their meals, and only to trust them with soft food, or divided in small pieces.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

SESSION 1841.

Fifth Meeting, January 2nd, 1841.

Sir HENRY MARSH, Bart., in the Chair.

1. *Dilatation of the Cavities of the Heart—Enlargement of the Thyroid Gland.*—Sir H. Marsh said, that some time since he had exhibited two preparations, one that of a very singular variety of aneurism formed in one of the aortic valves, the other that of rupture of two of the chordæ tendineæ, followed, in a few hours, by death. The morbid change which took place in the valve had extended itself to the chordæ, and had rendered them weak, fragile, and liable to rupture. He now wished to exhibit another preparation, illustrating a very curious and interesting affection of the heart. It would be, perhaps, in the recollection of many of the members that he had, last year, described a singular variety of disease of the heart, and one which, since that time, he had more than one opportunity of verifying by dissection. The disease of which he then spoke presented the following striking characters—remarkable engorgement of the veins, particularly of those of the neck; rapid, violent, and irregular action of the heart, and these, in every instance, co-existing with enlargement and swelling of the thyroid gland. He had mentioned also, that in the majority of these cases, there was a remarkable prominence and protrusion of the eyeballs, so as to give to the group of symptoms by which this disease was characterized a very striking feature. All these phenomena had been observed in the case which he was about to lay before the Society. The prominence of the eyeballs, though existing in this case to a very great degree, was not so strongly marked as in other cases he had witnessed. The enlargement of the thyroid gland, increasing and diminishing as the heart's action was more or less violent, was also present. The immense distention of the veins of the neck, and the habitually rapid, violent, and irregular action of the heart were likewise amongst the symptoms which were observed in this case. The first point to which he would direct attention was the condition of the thyroid gland. It was altered in appearance since it had been first examined, it was now considerably shrunken; in its recent state it was much larger. When first removed its surface was irregularly lobulated, and the lobes or cysts contained a considerable quantity of clear fluid. During life it projected so as to form a very large and prominent tumour; whenever there was any inordinate action of the heart, it appeared to swell and increase in size, whilst, at the same time, the veins of the neck were so greatly distended as to give the patient a very extraordinary appearance. The external jugular vein on each side formed a tumour of considerable size. On examining

the body after death the internal jugular vein of the right side was found so very much dilated that when emptied by puncture it measured an inch and a half across ; it was filled with dark, fluid blood ; one of the enlarged lobes of the thyroid body lay over the carotid artery, which communicated a strong pulsation to the whole mass. The lungs were forced considerably upward, so that the apex of the lung on the right side passed up as high as the fifth cervical vertebra.

Sir H. Marsh next exhibited the heart, and observed that the appearance of the auricles, when first seen, was very remarkable ; the left auricle was enormously enlarged ; he did not think that its walls were hypertrophied, but its capacity was far beyond the normal standard. The dimensions of the right auricle were also considerably increased, though not to such an extent as those of the left, and the muscular fibres of its walls were slightly hypertrophied. The left ventricle was dilated and hypertrophied, but not to a remarkable degree ; along the margin of the mitral valve were depositions beneath the lining membrane : in the recent state they resembled depositions of granular fat, and their effect was to thicken the edges of the valves, and of course interfere with the free discharge of their functions. The same disease existed, and to a greater extent, in the valves of the right ventricle. Sir H. Marsh here exhibited the valve, the margin of which was much thickened by this abnormal deposit. The semi-lunar valves of the aorta and pulmonary artery were healthy ; the disease appeared to be restricted to the auriculo-ventricular valves, those of the right side being most altered. Such were the morbid alterations in the heart before him. The subject of the case was a tall person, and he had several times observed the disease in persons of tall stature. The patient suffered greatly from palpitations of the heart and dyspnœa, much aggravated by exercise and mental emotions. The action of the heart was irregular, and very peculiar ; it made three beats in succession—the first was strong and distinct—the second, which closely followed the first, sounded almost like a double beat—and the third was somewhat more distant, and followed by a pause. The symptoms had existed for a long time, and were not accompanied by bruit de soufflet, or any analogous sound. The disease terminated in general anasarca, followed by erysipelas and gangrene.

Sir H. Marsh said, he had taken a few notes of another case, which had lately come under his notice, and he would read them for the meeting, as in this instance the disease was very well marked. The subject of the case was a woman, about 40 years of age, who had been originally very plump, and was of low stature, differing in this point from the other cases he had met with, the disease having been generally observed in tall persons. She had been married, had borne ten children, and menstruated regularly. She was a person of lively and energetic manner, of a highly nervous temperament, and evinced much activity both of body and mind. She stated that she had been subject to epistaxis, but exhibited no signs of disease either

of the head or chest, and her digestive functions were natural. She also said that she had been for a considerable time in attendance on an epileptic relative, and that this had kept her in a constant state of nervous excitement and apprehension. Sir H. Marsh said, he had mentioned this particularly, because the disease which he had been describing seemed to begin with nervous palpitations. Her face was pale and somewhat tumid, eyes prominent, her lips purplish, the veins of the neck considerably distended, and the thyroid body much enlarged. The impulse of the heart gave motion to the integuments over a space exceeding far the ordinary limits of the cardiac region; and there was considerable extent of dulness on percussion. The first sound of the heart was short, quick, and loud; the second faint and scarcely audible, in consequence of being masked by the first, but there was no bruit de soufflet or any other abnormal sound. She complained of being subject to attacks of dyspnœa in the morning, accompanied with a sensation of fluttering in the heart; she sometimes had similar attacks during the day, but not so severe. Any unusual exertion, or sudden mental emotion was sufficient to bring on distressing palpitations. Her pulse was quick and jerking, never below 90, her respiration clear and puerile. The bruit in the carotid artery, where it was pressed on by the thyroid gland, was actually perceived by the patient, and caused a great deal of annoyance; she stated that she felt a whizzing sound in her neck, of which she never could get rid, and that it was one of the most distressing sensations she felt. Sir H. Marsh said, he had read the notes of this case because they appeared to him to convey a good description of the disease. He thought that in this case there was no valvular disease, but he believed that if the affection had been unchecked, morbid alteration of the valves would have been the probable result. In the treatment of the case he had enjoined the strictest avoidance of every thing calculated to agitate the mind or fatigue the body, and had found the exhibition of carbonate of iron, with extract of hyosciamus very beneficial. He thought much advantage might have been derived from travelling and change of air, but the circumstances of the patient prevented her from availing herself of them.

Sir H. Marsh said, that before he concluded he would beg leave to exhibit a morbid specimen which appeared to him to be both rare and curious. In the course of his observations, both in hospital and private practice, he had witnessed only two other instances of the same kind. He had seen many persons die of hæmoptysis, but he had met with only three cases in which the blood-vessel from which the blood issued had been discovered. One of these examples occurred in a man who was employed as a crier at auctions, and, while in the act of crying, "Step up to the auction," a gush of arterial blood came up and he was immediately suffocated. The subject of the second case was a porter who dropped dead whilst carrying a heavy load, blood having been poured out profusely both from the mouth and nose. In the lungs of each of these individuals tubercular cavities existed, in one of which an artery of considerable size was found

to be ruptured. The third instance was that of a boy, from whom was taken the specimen he held in his hand, who came into hospital with hæmoptysis, under which he sunk rapidly. The ruptured artery was found in one of the numerous cavities with which the lung was studded. Sir H. Marsh here exhibited the artery, and stated, that when the part was first examined it had an ecchymosed appearance from the effused blood, but on washing it carefully, the ruptured vessel was discovered. He added, that nearly about the same time, another patient in the ward died under similar circumstances. As in the former cases, the lungs were filled with cavities, but after the most minute and careful examination, no trace of any distinct vessel could be discovered, and the blood seemed to have been exhaled or effused from a large surface.

2. *Acute Pericarditis*.—Dr. Lees presented a recent specimen of acute pericarditis, taken from the body of an infant, aged four months. The mother of the child was labouring under pulmonary phthisis, but the infant was reported to have been in good health until six weeks previous to its death, at which period it had been taken from its mother and entrusted to a careful nurse. The disease was exceedingly obscure; the nurse merely observed that the child looked ill, and seemed to be suffering from some internal pain. During the evening preceding its death convulsions came on, and continued, with more or less severity, from eleven o'clock, P. M., till four o'clock upon the following morning, when death took place. The only morbid appearances were those of acute pericarditis, both layers of the pericardium being covered with a thick coating of greenish-coloured lymph. Dr. Lees alluded to the opinions of Billiard, who considers it almost impossible to discover the existence of pericarditis in the infant, and observes that it is frequently confounded with acute pleuritis and other diseases. He says that the respiration is suffocative and attended with cough; these symptoms were not present in the case brought before the Society.

3. *Pulmonary Apoplexy*.—Dr. Law laid upon the table an example of pulmonary apoplexy which had come under his notice within the last few hours. The patient, a lad aged 17, stated, upon his admission into Sir Patrick Dun's Hospital, that he had been unwell about a year and a half; his illness commenced after exposure to cold and wet on the outside of a stage-coach. He was attacked with cough, which was constant, but he had no hæmoptysis, until three months previous to his admission into the hospital, shortly after which he also discharged a large quantity of blood. Upon examination, the chest was found to be clear on percussion at both sides, with the exception of the inferior portion of the right side, which was dull; a distinct crepitus could be heard over the anterior part of both sides of the chest. The patient became gradually worse, and died, January 2nd. The post mortem examination disclosed the following morbid appearances: the apex of the left lung adhered to the corresponding part of the chest; the right lung was much firmer

in its texture than the left, and presented distinct evidence of tubercular infiltration; there were tubercles also in the left lung, but not to the same extent as in the right, the lower lobe of which was solid, and contained a large coagulum of blood. The patient had also had discharges of dark thick blood from the intestines.

4. *Caries of the Cervical and Dorsal Vertebrae*.—Mr. Smith directed the attention of the meeting to a very remarkable example of disease of the spinal column. The patient whose case formed the subject of his communication, was admitted into the Richmond Hospital, April 23, 1840. She was a female, ætat. 14, and had been in delicate health for the last two years. The affection of the vertebrae had existed for upwards of seven months, and its origin was ascribed to her neck having been suddenly and violently twisted, in consequence of a person lifting her from the ground by one hand placed under the chin and the other under the occiput. The child, previously in delicate health, now began to fall away rapidly; she first complained of debility and loss of appetite, to this succeeded vomiting, and a sense of constriction and pain across the stomach, with frequent headach and attacks of constipation of the bowels; her complexion became sallow, she had night perspirations and cough, and the motion of the car upon which she was conveyed to the hospital, caused her so much agony that she screamed loudly. She walked very slowly and with the greatest caution, and appeared to suffer pain from the least exertion. She referred all her distress to the cervical region, and experienced great pain when pressure was made upon the cervical vertebrae, or top of the head: there was no deformity of the spinal column, but the cervical glands were enlarged; she had neither dysphagia nor dyspnœa, nor was there any loss of sensation in the limbs, but she moved her arms awkwardly, and complained that they occasionally felt weak and heavy. After her admission the disease seemed to progress rapidly; she lay upon the right side, with her head upon the same plane as her body, and always supported by her hand. The pain she suffered was such that she often lay awake at night screaming; her cough, in a short time, became more severe, and was attended with muco-purulent expectoration, and, occasionally, hæmoptysis. A tumour now appeared above the right clavicle, suppurated, and the skin having given way, air and foetid pus escaped; the opening never closed. The discharge from this abscess was similar in colour, smell, and consistence to that expectorated, and flowed in increased quantity whenever she coughed, upon which occasion also the tumour became puffed out with air. Three weeks before death she had hæmoptysis for several days, but three days before her decease all expectoration suddenly stopped; a large abscess had also formed at the upper and back part of the neck, her left arm was almost completely paralyzed, her hands and feet became œdematous, and the abdomen tympanitic, the muscles of the lower extremities were relaxed, they had never been convulsed or spasmodically contracted, nor had she any paralysis of the sphincter.

She died April 26, exhausted by hectic fever. *Autopsia*.—Upon making an incision over the cervical vertebræ, a large abscess was opened, at the bottom of which appeared the laminæ of the vertebræ deprived of their periosteum; the interspinous ligaments and ligamenta subflava were also destroyed; upon examining the occipito-atlantal articulation, it was found that the capsular ligament upon the right side was destroyed, the occipital condyle was partly absorbed, as also the superior articular process of the atlas, and the process of ankylosis was nearly perfected between these two processes; upon the left side the capsule was entire, but the cartilage was in some places destroyed, and the periosteum separated from the surrounding bone; the osseous tissue was exceedingly vascular; the odontoid process was stripped of its cartilage, the right check ligament destroyed, and the left nearly so; there was no trace of the transverse ligament, the apparatus ligamentosus colli was perfect, except at its insertion on the right side, and upon this side the body of the second vertebrae, both anteriorly and posteriorly, was rough and bare, the anterior common ligament seemed sound along the cervical vertebræ, but did not exist from the upper edge of the last cervical to the lower border of the second dorsal. The first and second dorsal vertebræ lay in fragments in the abscess, the inter-vertebral substance, and all the ligaments being destroyed; the sheath of the spinal marrow was in a state of slough, and the medullary structure softened and of a dull colour: the transverse processes of several of the dorsal vertebræ were carious upon the right side, and their articulation with the ribs diseased also; the lungs contained tubercles and several small cavities; at the apex of the right lung the pleuræ were united; a catheter passed into the cavity of the abscess which existed above the clavicle took the following remarkable route, through the united pleuræ into an abscess in the lung, thence through a long fistula into another small abscess, which conducted the instrument, by means of a sinuous canal, into the right bronchus, from which it passed into the posterior mediastinum into an abscess (behind the anterior common ligament) which communicated with the carious dorsal vertebræ. The posterior parts of both lungs were greatly congested and in spots gangrenous; the right bronchus and the lower part of the trachea were in a sloughy state; the subserous cellular tissue upon the under surface of the diaphragm contained numerous small scrofulous tubercles; the mucous membrane of the stomach was slightly softened, and the liver was large and soft. The patient having been slightly deaf on the right side, the ear was examined, and the mastoid cells found filled with bloody serum.—*Museum, Richmond Hospital*.

5. *Fracture of the Clavicle*.—Mr. Smith exhibited a series of specimens illustrative of fracture of the clavicle, between the conoid and trapezoid ligaments; in all, the fracture had united, in some without any deformity, but in the greater number the deformity resulting from the injury remained, and in each specimen presented

nearly similar characters; the fragments being united nearly at a right angle, which was salient upwards and backwards; the supra-clavicular space was considerably diminished by the displacement consequent upon the fracture; in every one of the specimens a remarkable process of bone, varying in length from a quarter to three-quarters of an inch, had sprung from the under surface of the clavicle, at the seat of fracture. Mr. Smith observed that it is generally to be found, when fracture has traversed the bone, between the conoid and trapezoid ligaments; in none of the specimens was there any overlapping of the fragments.—*Museum, Richmond Hospital.*

6. *Fatty Condition of the Heart.*—Dr. Stokes said, that at the last meeting he had brought forward a case of fatty degeneration of the liver observed in consumptive persons. Within the last hour Dr. Lees had presented him with a specimen of unusual deposition of fat in the heart of a phthisical patient. In the great majority of cases of chronic phthisis the heart is small and emaciated, and the emaciation of the muscular fibres of that organ is in proportion to the emaciation of the voluntary muscles. In the heart before him the organ was larger than usual, and contained a considerable portion of fat, but its muscular fibres were soft and flabby, pitting on pressure, and offering very little resistance to the finger. Dr. Stokes was inclined to look upon the increased size of the heart and deposition of fat as a new feature in the pathology of phthisis.

Sixth Meeting, January 9th, 1841.

MR. ADAMS in the Chair.

1. *Cancer in the subserous Cellular Tissue of the Stomach.*—Mr. Carlile presented the liver, stomach, and a portion of the intestine of a woman aged forty-five. Very little was known of her previous history, as she was admitted into hospital in a very low state, and died two days after her admission. In fact, she came in when in the stage of collapse, with severe pain and tenderness of the abdomen, constant discharges of blood and mucus, and great emaciation. Every remedy employed for her relief proved ineffectual, and she sank on the second day. On opening the abdomen the following phenomena were observed. The left lobe of the liver was found to be firmly and extensively adherent to the stomach; the peritoneum, and particularly that portion which formed the great omentum, was highly vascular, and the lower portion of the intestinal tube was found to present a great number of ulcerated patches, with considerable thickness of the mucous membrane. At the point where the stomach adhered to the liver, there was a large ulcerated cavity, presenting all the appearance of cancerous ulceration. Mr. Carlile was of opinion that it commenced in the subserous cellular tissue of the stomach, and that it extended thence to the liver, the left lobe of which was extensively destroyed by cancerous ulceration.

2. *Sequelæ of Scarlatina*.—Dr. Duncan presented specimens taken from two subjects who had died of scarlatina. The preparations were illustrative of the nature and character of the present epidemic scarlatina, as it appeared in the medical wards of the North Dublin Union. In both of these cases the fever was very high, the eruption dark coloured, and the enlargement of the glands, particularly those of the submaxillary region, very striking. In one of the children the swelling appeared very suddenly, in fact in the course of three or four hours; in both cases there was a layer of lymph extending from the throat down the œsophagus, and in one of the preparations the exudation of lymph extended as low as the cardiac orifice of the stomach. In both cases there was œdema of the glottis. Dr. Duncan exhibited a specimen of this, and also one of the glands beneath the lower jaw, to show the enlargement produced by the disease, and observed that the lung of the younger child, only a year and a half old, presented evidences of tubercular development in the early stage. He observed, that the child who presented this phenomena appeared to be quite well about a week since. In some of these cases pneumonia and tubercle seemed to be simultaneously developed and some of the children who have recovered from pneumonia are at present labouring under phthisis. The younger child had phlyctenoid vesicles on the arm surrounded by erysipelatous redness. About three days before death, similar vesicles also appeared on the feet, surrounded by erysipelatous redness. Dr. Duncan said he thought the disease was interesting, as connected with other cases which had occurred in the institution, for there had been nearly at the same time three cases of glandular enlargement with œdema of the glottis independent of any eruption. The coexistence of pneumonia and tubercular development was also most important.

3. *Acute Pleuritis*.—Dr. Lees laid before the Society a specimen of disease of the pleura in a child three years old. The child had come under his care about six months since, being at that time labouring under measles with bronchitis, its convalescence from which was very tedious. About two months afterwards it caught maculated typhus from its mother, and recovered very slowly and imperfectly. The child presented many of the phenomena indicative of organic disease, namely, short cough, quick pulse, wasting of flesh, and loss of complexion. About three days previously it was attacked with symptoms of pneumonia attended with high fever. The acute symptoms gave way to treatment, but the child did not appear to improve; the right lung which had been dull on percussion continued so, and the respiration remained feeble and almost inaudible. The child sank very rapidly. On dissection, lymph was found deposited so uniformly over the surface of the pleura, that it looked more like a thickening of the pleura itself than a succession of layers superimposed one over the other. Both lungs were filled with tubercles. It was curious in this case, that although from the appearance of the pleura, the deposition of lymph must have been of long standing, yet the child had

not the slightest symptom of pneumonia or pleuritis until three weeks ago. The liver was of a bright purple colour, and thickly studded with tubercles; the spleen was also full of tubercles. The cœcum and colon contained a large quantity of that species of intestinal worm termed *tricocephalus*.

4. *Caries of the Temporal Bones*.—Mr. Smith exhibited two preparations taken from the body of a young female aged 16, who died the day before. The subject of the case had been an idiot from her cradle, and was also dumb and deaf, but not completely so. Within the last two months she had been subject to purulent discharge from the ears, mixed with sanious matter, and accompanied with severe pain. She had also been subject to repeated attacks of epileptic convulsions, and died rather suddenly on the preceding day. On examining the right ear, Mr. Smith found that the *membrana tympani* was destroyed; the malleus, incus, and stapes gone; and a small quantity of purulent matter in the mastoid cells. The left side presented a very remarkable specimen of disease of the mastoid and petrous portions of the temporal bone. Above the external meatus the temporal bone was perforated by a large opening which communicated on one side with the cavity of the tympanum, and on the other with the mastoid cells. All the partitions of the mastoid cells were destroyed, and the whole cavity thus formed was filled with fetid pus, mixed with particles of carious bone. The purulent matter had also penetrated into the vestibule, the cochlea, and the aqueduct of Fallopius. The foramen rotundum, and fenestra ovalis, were thrown into one large opening. On tracing the nerves, Mr. Smith found that the *portio dura*, where it passes through the aqueduct of Fallopius, was covered with lymph and purulent matter of a greenish hue. The *dura mater* covering the anterior surface of the petrous portion of the temporal bone, was slightly discoloured, but there was no pus in the vicinity. The great lateral sinus upon the same side presented the appearance of commencing inflammation; the lining membrane was of a dark-green colour, and the blood in the sinus was coagulated. There was in this case no paralysis or distortion of the face.—*Museum, Richmond Hospital*.

5. *Disease of the Pons Varolii*.—Mr. Smith showed a drawing taken from a case, the preparation of which he had brought to the last meeting, but as there was not time for exhibiting it, he could only refer to the drawing, being unable to preserve the specimen itself. The case was that of a woman who had laboured under paralysis of the *portio dura*. She was a person in humble life, and was exposed to the draught from a broken pane of glass after her confinement. She caught cold, and was attacked with earach, and pain of the left side of her face, and some time afterwards, on examining herself in a looking-glass, found that her face was drawn to the right side, and considerably distorted. She then applied for medical aid, and was admitted into the Richmond Hospital with paralysis of the *portio dura*. There was very little distortion of the face when the

features were in a state of repose, but when she attempted to laugh, speak, or eat, the face was drawn towards the right side. She experienced very little benefit from treatment, and left the hospital nearly in the same state that she entered it. She was admitted again in August, 1839, with paralysis of the face, but strange to say the paralysis was now chiefly on the right side of the face. She had also paralysis of the fifth nerve of the same side, and had the usual sensation of drinking out of a broken vessel when she swallowed fluids. About the end of August she was attacked with severe pain of the head, followed by epileptic paroxysms. The right pupil then became dilated and fixed; the left contracted, but sluggish in its motions, and for some time before death she had loss of vision. The paralysis of the face gradually increased so as to become complete, and she had also paralysis of the right side of the body. The headach continued up to the period of her death, which occurred a short time before Christmas. On examining the brain the morbid appearances were almost entirely confined to the pons varolii. The immediate cause of death seemed to be an apoplectic effusion at the base of the brain. No appearance of disease could be observed in the nerves. The external surface of the pons was rough and vascular; and on cutting into it, the nervous matter was of a dark yellow colour in the centre, without being softer than the rest of the pons, and this yellow discoloration extended to a considerable depth into its substance. The disease appeared to have originally commenced in local paralysis of the portio dura of the left side, from which it travelled upwards until it reached the pons, and implicated the portio dura and fifth nerve of the opposite side; in other words the morbid influence had extended from the periphery to the centre, and from the centre back again to the periphery in the opposite direction. This was the only explanation that suggested itself to Mr. Smith. Whether correct or not he could not determine; but the case was interesting in this point of view, as it would tend to establish an important practical fact; namely, that paralysis of the portio dura from exposure to cold, was not to be always looked upon as a slight or curable disease, as the paralysis might extend from its original seat back towards the root of the nerve, and thus give rise to cerebral disease.

6 *Congenital Hernia (Strangulated).*—Mr Smith exhibited a preparation, taken from the body of a young man, aged 19, who had been under Dr. Hutton's care in the Richmond Hospital. He was admitted on the 25th of September. He stated, that on the 23rd he had noticed, for the first time, a tumour in the vicinity of the external abdominal ring on the right side, but that he had no evacuation from his bowels since the 20th. On the 23rd, during the course of the day, the tumour became painful and tender to the touch, and he suffered a good deal from irritability of stomach, and nausea. Next day the tumour was increased in size, the pain and tenderness were greatly augmented, and to the nausea were superadded frequent vomiting and thirst. When he came to hospital on the 25th, he was

sinking fast into a state of collapse. His face was pale, his extremities cold, his pulse feeble and failing, he vomited frequently, and had no evacuation from his bowels; there was a tumour in the scrotum; tense, solid, and pyriform like an hydrocele; no impulse was communicated to it by coughing, nor was it affected either by pressure or by change of position. It had also a sense of fluctuation, and the cord could be felt above and behind it with great facility. All these circumstances tended to throw considerable doubt on its nature. The shape of the tumour, its relation to the cord, the apparent nature of its contents, and the fact of its not being affected by coughing or change of position were calculated to lead to an error in diagnosis, for it might readily have been mistaken for hydrocele, or acute testitis; the opinion, however, formed in consultation, being, that it was a hernia. An operation was proposed, which the young man's friends would not consent to until the following day (26th), in the afternoon of which the operation was performed by Dr. Hutton. On cutting into the sac it was found to be formed by the tunica vaginalis testis, and it became at once evident that it was a case of congenital hernia; the structure was freely divided; the protruded portion of the intestine was of a dark colour, and lay in contact with the upper part of the epididymis. The tunica vaginalis was very much thickened, and contained a few ounces of dark coloured fluid. On examining the protruded intestine it was found to be perforated with a very minute aperture, the result of gangrene. The tumour formed by the intestine was then punctured so as to allow its contents to escape. The patient, however, experienced no relief from the operation, and died the following morning at five o'clock. The case was interesting from its close resemblance to testitis, and was confirmatory of the remark made by Mr. Smith upon it as one of great importance in the pathology of hernia. (*Museum, Richmond Hospital.*)

Seventh Meeting, January 16.

MR. ADAMS in the Chair.

1. *Scrofulous Disease of the Testis, and Vesicula Seminalis.*—Professor Harrison exhibited the recent parts in this case. The patient from whom they were taken was of a scrofulous habit, and laboured under dyspeptic symptoms with quick pulse, and emaciation. The disease was of two or three years' duration, and the patient had been under treatment for it in two or three different hospitals in England. Small tumours appeared on various parts of the testicle, suppurated, and after discharging for some time, healed up, and then the disease appeared in the same form in other parts of the organ. When admitted into Jervis-street Hospital, he had two large ulcers on the upper part of the scrotum, from which a thin purulent fluid, mixed with a small quantity of matter of a tubercular character, was discharged. The surface of the ulcers appeared somewhat sloughy, but he did not complain of any severe pain. He derived some benefit from the use of local applications, and one of the ulcers assumed a

healthy appearance; but his health then began to suffer, and during the latter months of his life, the glands of the groin, and along the course of the spermatic cord, became enlarged. He suffered severely from diarrhœa, which ultimately proved fatal. The disease of the testicle seemed to give him very little inconvenience. He had no retention or difficulty of passing water, nor was the urinary secretion deficient; neither had he any symptoms of disease of the bladder. Dr. Harrison showed the testicle which contained several deposits of tubercular matter; the vasa deferentia and vesicula seminalis were filled with a large quantity of scrofulous matter. The left vesicula seminalis was dilated into an enormous scrofulous abscess, so that when the pelvic cavity was first inspected it was thought to be the bladder. It was so much enlarged as to contain nearly half a pint of scrofulous matter. There was also a small abscess in the substance of the prostate gland; the bladder was of a very small size. In order to prove the general scrofulous diathesis of the patient, Professor Harrison exhibited a portion of the mesentery in which there were several glands filled with scrofulous matter. In the substance of the testicle there was a large abscess, which had engaged nearly the whole of the glands, leaving scarcely a trace of the tubuli seminiferi. (*Museum, Trinity College.*)

2. *Enlargement of the Superficial Veins of the Abdomen.*—Dr. Stokes said, that although he had no preparation to illustrate the case and observations he was about to lay before the meeting, he trusted he would be excused for speaking for a few moments on a subject of considerable interest, and to which the attention of the profession had not been sufficiently directed. Indeed, he thought it important that the condition he was about to describe should be borne in memory by the members of the Society, with the view to a more extended and systematic attempt to throw light on a subject involved in some degree of obscurity. He alluded to the existence of a number of varicose veins on the abdomen in some cases of abdominal disease. Attention was first drawn to this symptom by M. Reynand, who published in the *Journal Hebdomadaire* a remarkable case in which this condition was present.

The hypogastric and epigastric veins were large, tortuous, and anastomosed freely with the intercostal and mammary. The case was interesting in many respects. The patient laboured under ascites, and had a canine appetite with constant diarrhœa. On dissection, it was found that the vena cava, and vena porta were nearly obliterated by an extensive cancerous deposit. From a review of this and other cases, Reynaud lays it down as a general rule, that in cases of chronic disease, where there is a coexistence of ascites with varicose enlargement of the superficial abdominal veins, it is an indication of some organic affection, producing incurable obstruction of the abdominal venous system. Dr. Stokes was therefore anxious to draw attention to this subject as a matter for further investigation. There was, at that time, a patient labouring under ascites, in the Meath Hospital, who presented this condition of the veins in a very remarkable manner;

a good idea of it would be communicated by the sketch before him with which he had been favoured by Mr. Hamilton. It differed from Reynard's delineation in having the central veins chiefly enlarged. In the case mentioned by Dr. Stokes, paracentesis was performed a few days previously, not with any expectation of success, but merely with the view of relieving distention. A question arose, why was this state of the veins present in some cases and not in others? That it was not produced by the mere pressure of the fluid, was plain, for it was wholly absent in many cases of ascites attended with great distention of the abdomen. With respect to the question, whether the existence of this enlargement of the veins was indicative of organic disease of an incurable nature, Dr. Stokes mentioned the following case which he had seen in consultation with Mr. Adrien: a gentleman who had resided in this country for the last six or seven years, in consequence of mental depression, caused by the death of a favourite child, lost his sleep, flesh, and appetite. Soon after, his legs began to swell, the dropsical effusion became more general, and he had two distinct attacks of ascites. In the last of these, the superficial abdominal veins became enormously enlarged. The epigastric veins in particular could not be less than one inch in diameter. The whole surface of the abdomen was covered with enlarged veins, and yet the ascites ultimately disappeared, and with his recovery, the enlargement of the veins disappeared also. He was treated by Mr. Adrien, who kept him for a long time under the influence of mercury, continuing the use of the mercury, and treating the soreness of the mouth as a local affection. This case proved, so far as it went, that the presence of enlarged veins was not to be taken as decided evidence of the existence of organic disease of an incurable nature. The question, however, was still open for investigation, and it was with this view that Dr. Stokes was anxious to bring it under the notice of the Society.

3. *Dislocations of the Hip Joint.*—Professor Harrison said that the specimen he was about to submit to the meeting, was not taken from the human subject; but, as comparative pathology was calculated to throw additional light on many subjects of interest, it might not be amiss to direct attention occasionally to the results of disease in the other animals. He would take leave, therefore, to show a specimen of injury of the hip joint of long standing in the horse, and also one of the same kind in a cow, both of which had occurred many years before the death of the animals. The bones which he held in his hand, formed part of the pelvis of an Arabian pony, which, about eight years ago, got entangled in a gate, and was supposed to have dislocated his hip joint, or to have broken the femur in its vicinity. As it was a great favourite with the family, it was allowed to spend the rest of its life at ease, and died a short time since. Dr. Harrison being anxious to ascertain the nature of the injury, made an examination, and found that the head of the femur had been dislocated in a direction upwards and forwards. Dr. Harrison proceeded to shew the relative position of the bones, the flatten-

ing of the head of the femur at the lower and back part, and the formation of a new socket to receive it, and observed that the ligamentum teres appeared to have been ruptured at the time of the accident, and afterwards removed by absorption. All round the seat of the injury, the bones appeared to have partaken in that irritation so commonly observed in such cases, for a number of bony spiculæ were thrown out in various situations. Dr. Harrison thought that there might have been a fracture. A strong ligamentous band, forming a kind of capsular ligament, surrounded the lower part of the head of the bone, and tended to give it considerable support in its new situation. The cavity of the old acetabulum was filled up with soft cellular substance, at the bottom of which, the bone was found to be stripped of cartilage. The other specimen was a dislocation of the same joint in a cow, but of a different kind. The accident had occurred about eight or nine years ago. The former was an example of dislocation upwards on the pubis; this of dislocation downwards into the thyroid foramen. The animal, while leaping or climbing over a ditch, had her leg caught in the bank, and fell; the dislocation was the result of forcible and extreme abduction of the limb. The head of the bone was thrown downwards, and inwards on the thyroid hole. In this situation, it had formed for itself a new socket of bone, by the deposition of ossific matter on the pelvic aspect of the thyroid hole and its ligament. (*Museum, Trinity College.*)

4. *Fracture of the Neck of the Humerus.*—Dr. Harrison exhibited a specimen of fracture of the anatomical neck of the humerus. The case was that of a man who was brought into Jervis-street Hospital, after having fallen down into a cellar, while in a state of intoxication. He was admitted in a state of insensibility, and, when he recovered, could not give any account of the accident. At the time of his admission, he was labouring under chronic bronchitis in a severe form, and lingered only a few days. On dissection, a fracture of the neck of the humerus, within the capsule, was discovered, separating the head of the bone from the neck, and passing thence down through the shaft of the bone as low as the insertion of the deltoid. (*Museum, Trinity College.*)

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